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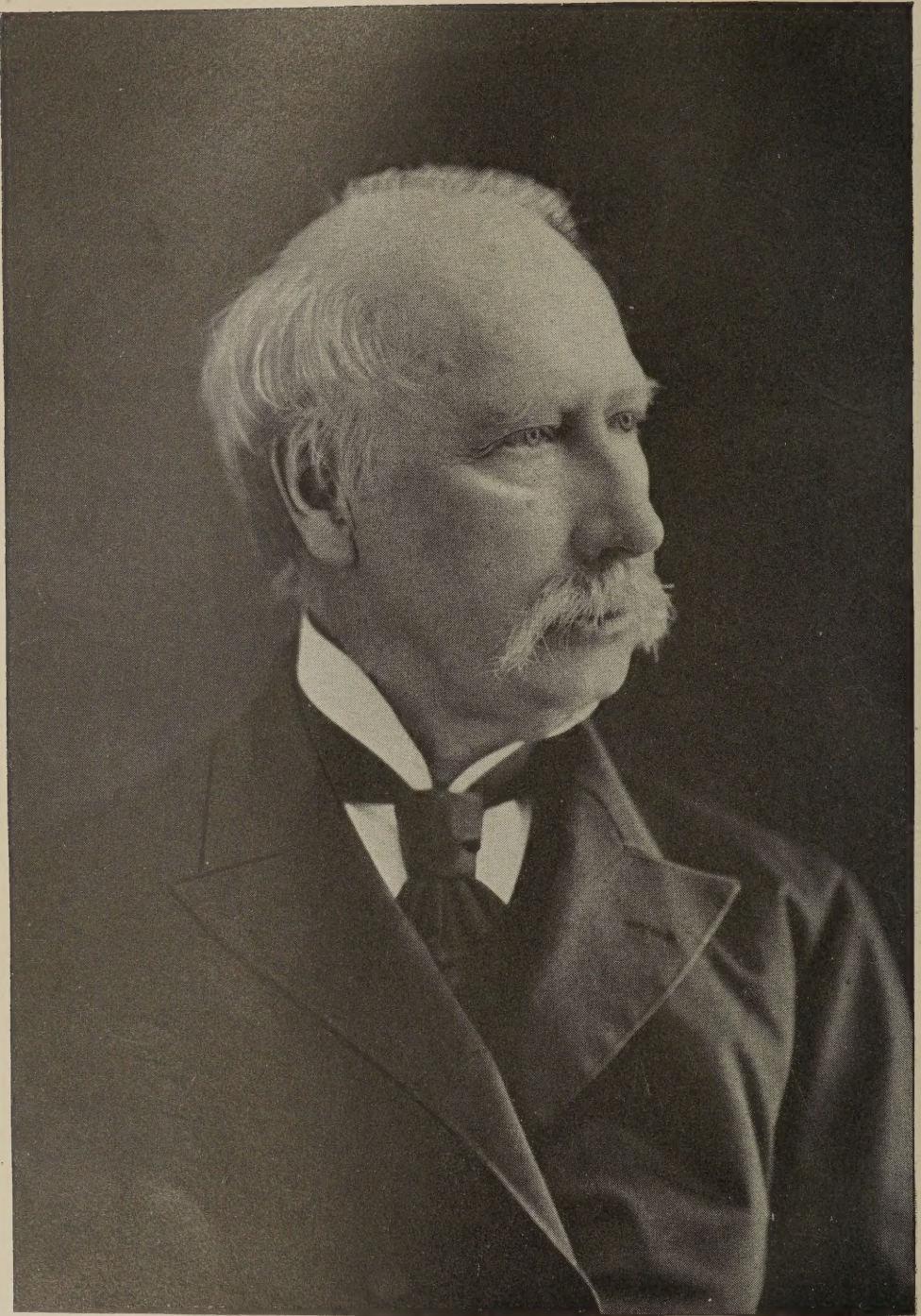






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BIOGRAPHICAL SKETCH  
OF  
D. HAYES AGNEW, M.D., LL.D.

BY DE FOREST WILLARD, M.D.<sup>1</sup>

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THE task imposed upon me to-night is one both of sorrow and of pleasure; of sorrow at the loss of a true, tried, and steadfast friend,—of pleasure such as comes to all who dwell on the sterling qualities of those they love.

During a close and intimate friendship of twenty-five years, Dr. Agnew has been my counsellor; adviser, teacher, helper,—a father in everything. For many years I saw him daily; was with him in his work in the dissecting and operating-rooms, and was associated with him both in his public and private operations. During this time and through all the later years I have had abundant opportunities to judge of his masterly skill and of his rare personal qualities.

There is scarcely one member of this society to-night who cannot recall some act of kindness from the hands of this grand old man. He was great as a surgeon; but it was especially as a man that we loved him. His personal magnetism and his calm dignity drew the student to him at his first lecture, and never afterwards did thought of disrespect enter the latter's mind. Annually, for forty years, he sent forth classes of young men, each one of whom was his friend, and each one of whom he elevated by his innate nobility. He had many great qualities, but for none of them was he so beloved as for his uniform kindness to "his boys," and as we grew in years his interest in our progress steadily increased.

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<sup>1</sup> Read, by invitation, before the Philadelphia County Medical Society, April 13, 1892.



He was eminent as a teacher, a surgeon, a consultant, a writer, and as a noble man.

For many long years in the Philadelphia School of Anatomy, on Chant Street, he toiled patiently and unceasingly, spending, as he has often told me, from twelve to eighteen hours per day in the dissection of the components of that wonderful structure which he learned to know so well. His knowledge of anatomy was so accurate that he never seemed to think about it, and in all his subsequent surgical work his success was largely dependent upon this training. So important did he consider the practical knowledge gained by the study of the cadaver that it pained him to see it falling into neglect, or replaced by the teaching from books or charts no matter how elaborate. Filled with his subject and a thorough master of his art, he rapidly gathered a private class amounting to two hundred and sixty-seven students, almost equalling those of the great colleges. His demonstrations with knife in hand and with cadaver before him were unequalled. Difficulties were cleared away as if by magic, and the students had before them a plain, clear, concise picture of the region under discussion. The surgical anatomy of the perineum and of hernia, those bugbears to students, seemed as plain as noonday.

Years of struggle, patient labor, and hard study brought knowledge; knowledge with him meant skill, and from this slowly came honor, fame, and fortune.

The University of Pennsylvania, ever on the alert to secure the services of just such able men, invited him to the position of Demonstrator of Anatomy in 1863; and from that time until his death his name has been associated with every advance of that great institution. His success added to her fame and brought crowds of students to her doors. When the University Hospital was added to the enlarged field in West Philadelphia, the opportunities for the display of his skilful methods of clinical teaching were greatly augmented, and his clinics were always most instructive. Whether engaged in didactic or clinical teaching, his manners and methods were nearly the same,—eminently practical without any attempt at oratory or dramatic effect. He possessed the power of presenting the truth in an instructive form, and in such a manner that the student could grasp and retain it.

Apparently unconscious of his fame, no student will forget his presence in the amphitheatre. He was markedly conservative and cautious, yet, while critical as to innovations, he was always ready to accept rational new methods.

Quick to perceive the practical value of antisepsis he early lent to it his influence, and by his powerful example and teaching gradually secured for it the foot-hold which it deserved. He was always progressive, even to the day of his death; never content with less than the best results, and he taught nothing which he had not tested and proved. For thirty years he stamped the surgical teaching of the University with his individual power,



and placed the school and himself in the fore-front of advancement. The elevated character which he imparted to the surgical atmosphere of America has done much to raise in the esteem of the public this noble branch of science.

As a surgeon he was calm, cool, deliberate, yet rapid. His ambidextrous hands were equally capable of extracting a cataract or of refracturing a bone. His recognition of surgical conditions by palpation was remarkable, and the accuracy of his diagnosis was seldom questioned. Under the most dangerous conditions, and in the face of appalling hemorrhage, he never lost his head, but quickly and judiciously adopted the best method of action. The writer well remembers a sudden rupture of an axillary vein during a reduction of a dislocation of old standing at the shoulder-joint, when the patient instantly collapsed, apparently into the grave. A quiet but quick movement of the hand placed his thumb upon the subclavian; the danger was averted, and the patient's life was saved.

His manipulations with the knife were noted for accuracy, delicacy, and certainty. He was dexterous chiefly because he was so familiar with his anatomy. His rapid, sure, and brilliant cut through the perineum, as he penetrated these tissues in search of a calculus, was not exceeded in grace by even the elder Pancoast. He had not the artistic touch of Levis in his operating, but in his work, as in everything else, his whole aim was safety and success.

As a consultant, his manners and methods were stamped by two peculiarities,—his keen, thorough insight into the disease and his kindness of heart; these qualities inspired the confidence both of the patient and of the attending physician. His few, quiet words and explanations as to the existing conditions were plainly delineated; the treatment to be pursued was carefully indicated, and any error that might have been made was corrected, but never to the detriment of the attending practitioner. There was no attempt to glorify his own services by depreciating those of others. He was, as Dr. Weir Mitchell has admirably said, "the doctors' doctor."

He was an example of punctuality. When one had an engagement to meet him, it was always wiser to be ten minutes in advance of the appointment than two minutes late; yet he never was in a hurry. In driving with him, through many years, I never heard him use a more vigorous expression to his driver than "we must push on." His counsel was sought for far and wide, and both his private and consultation practice were immense.

His attendance at the bedside of the martyred President Garfield will be remembered by all. He was, as was often remarked, "the most trusted adviser," and his calm survey of the symptoms associated with this mortal wound resulted in prolonging the patient's life and adding to his comfort. When it became necessary to use the knife, his hand was the one to relieve the pus-burrowings, and his voice did most to cheer those who watched with



his distinguished patient; yet he never seemed to feel that the eyes of the nation were upon him. I well remember journeying with him to his summer home after one of his memorable visits to Washington, immediately after this operation. All eyes were turned towards him, yet in the crowded car he sat upon a coal-box quietly and unconcernedly chatting now and then on passing events. At the sacrifice of his personal comfort and literary duties (he was then hard at work revising his "System of Surgery" for the second edition) he continued to perform his duty to the nation, caring little for the plaudits of his countrymen or for the criticisms of would-be wiser men. His reward came not in the pittance granted by Congress (which he never desired), but in the heart of the widow and in the esteem of the nation. He did his whole duty in this case as he did to every patient who came under his care; rich and poor alike were sure of his kind and careful attention.

As an author his permanent fame must rest largely upon his "Principles and Practice of Surgery." A busy man, opening its pages, never fails to find useful directions for treatment, clearly-drawn lines of diagnosis, carefully-delineated deductions in regard to prognosis, and positive opinions as to the arguments for and against operation; for Agnew knew as well when not to operate as when to cut,—a quality not possessed by all surgeons. A student finds in its pages careful research and well-selected notes of medical history. Through the whole work runs the distinctive thread of his own personal experiences, from which his thoughtful and practical brain had gleaned so much. It is in this portion of his work that his individuality stands out so markedly. It is written in much the same manner as he lectured. He was always a teacher. When he theorized, his thoughts at once carried him to some practical results. Its three thousand pages cover the entire ground of surgery, including all the specialties as now practised, but which were then only adjuncts. His masterly chapter upon inflammation was fittingly introduced by this sentence, "Surgery is both a science and an art, and he who aspires to the possession of its principles will at once be confronted with a process so universal in its operation, so constantly recurring, that to ignore its diligent study is to enter upon one of the most responsible of the learned professions with a certainty of defeat; this process is inflammation."

His "Practical Anatomy for Dissectors" was issued in 1856. The preface to this work admirably expresses his whole line of teaching for forty years. "This work has been prepared with an eye single to the faithful economy of the student's time."

His monographs on "Laceration of the Female Perineum" and on "Vesico-Vaginal Fistula" are excellent descriptions of the pioneer work in these operations.

His writings were not voluminous, yet his industry was remarkable, and in the midst of his enormous practice he published more than one hundred journal articles during the past decade.



As a man and a physician he was thoroughly honored. His students are scattered from Maine to California, and they are all his friends. His calm, grave face, so ready to light into a smile, and never wanting in its kindly aspect, will ever remain in the hearts of his admirers. He was never morose, never discouraged; always calm exteriorly, yet after forty years of continuous teaching he was agitated by an approaching lecture. He was very reticent and undemonstrative, yet always cheerful, a cheerfulness born of his love for God, his profession, and his fellow-men. It was pain for him to be unable to do a friendly act. His convictions were strong, and he never seemed weak save when in his guileless simplicity he was made the tool of designing men. He was so honest that he seemed to fail to recognize the intrigues of others.

He was honest in thought, in speech, and in action. He was honest as a surgeon; he always did the thing which he believed to be the best for his patient. His hand was ever ready to assist the weak and struggling practitioner, and the profession of Philadelphia was through him raised to a higher plane.

He had no jealousies. His honors came to him unsought, and they aroused no jealousies on the part of others, because all recognized that what he gained he won. His success in life was achieved not by any turn of fortune, but by patient industry, by tireless application, by wise judgment, by thorough knowledge, by consummate skill, and by honest purpose of word and act.

He was never ostentatious in anything. His familiar duster was a figure in the operating-room, and he never seemed to realize that he was other than a surgeon trying to cure disease, and that he was teaching the young men just how to do it best.

In private and in public he was always the same. In his home life his command to a servant was but a quiet request. For many years his retiring hour was at nine o'clock, and when under pressure of literary work he was obliged to change his habits to a later hour, the trial seemed dangerous.

He was tall, strong, healthful, and vigorous. Rarely did he rest. His pleasure was work, and he pursued it unremittingly. His capacity for work was prodigious, and until an attack of grippe, two years ago, he never seemed to tire. I have seen him, after a long office-work in the morning, fill ten or fifteen fixed consultation appointments in different parts of the city, in addition to his private work and operations, together with a lecture or clinic in the middle of the day, and then travel all night to a distant city; yet it was accomplished with ease and without haste.

He was very fond of horses, fond of nature, and in his busy life he found time to store up much of history and general literature.

His presence and his manner inspired confidence on the part of the patient, and his recognized skill brought him steadily-increasing influence and practice, so that he rose, step by step, by almost unconscious progression,



until in the eyes of the nation he stood esteemed, and in the profession he was the recognized surgeon-in-chief. He was conservative, thoroughly skilled, and wise,—high qualities possessed by few.

David Hayes Agnew was born November 24, 1818, in Lancaster County, Pennsylvania, the son of a physician, Dr. Robert Agnew. His early education was obtained at Moscow Academy, then at Jefferson College, Cannonsburg, and completed at Newark College, Delaware.

He graduated in medicine at the University of Pennsylvania in 1838, and afterwards practised his profession in his own county for a few years. He was induced to enter the iron business, which venture, however, proved disastrous. In 1853 he returned to Philadelphia, when he began his anatomical teaching in the old Philadelphia School of Anatomy, on College Avenue. A year or two later he established the Philadelphia School of Operative Surgery.

In 1854 he was elected surgeon to the Philadelphia Hospital, where he did most excellent work. He founded the Pathological Museum, and, in connection with the late Dr. John L. Ludlow, succeeded in restoring to public teaching the unusual wealth of material contained within its walls. He was elected Demonstrator of Anatomy and Assistant Lecturer of Clinical Surgery to the University of Pennsylvania in 1863. In 1864 he was elected Surgeon to the Wills Eye Hospital. He was called to the Pennsylvania Hospital in 1865, and the same year to the Orthopædic Hospital.

His action in regard to teaching mixed classes of men and women at the Pennsylvania Hospital is a well-known fact in medical history. He promptly sacrificed his coveted position in this hospital to his conviction of right, but his value to the hospital was well evidenced in the unanimous call which was extended to him to return, a few years later, with the distinct understanding that he would be permitted to use his own judgment as to his audiences.

During the War of the Rebellion he gained a large experience in military surgery as Consulting Surgeon to the Mower Hospital, at Chestnut Hill, where there were at times as many as five thousand patients.

In 1870 he was chosen to fill the chair of Operative Surgery in the University of Pennsylvania, and in 1871 he became the John Rhea Barton Professor of the Principles and Practice of Surgery to the same institution, which position he held until he resigned all public positions in 1889, when he was elected Emeritus Professor to the University and Honorary Professor to the University Hospital.

In 1841 he married Miss Margaret C. Irwin, a member of a well-known family in Chester County largely interested in the manufacture of iron, and to her influence and counsel he always attributed much of his success in life. He leaves no children.

He was elected President of the Philadelphia County Medical Society in 1872, of the Pennsylvania State Society in 1877, President of the



Philadelphia Academy of Surgery and of the American Surgical Association in 1888, and President of the Philadelphia College of Physicians in 1890. In 1891 he was elected Honorary Surgeon to the Presbyterian Hospital, being the only one on whom this title has ever been conferred. At different times he had been consulting surgeon to numerous institutions.

He was manager for twenty years of the Philadelphia House of Refuge, and also a director of the Union Trust Company.

In 1888, at the completion of his fifty years of honorable service in medicine, his brethren in the profession tendered him a banquet, on which occasion his friends from Philadelphia and other cities of the Union assembled to do him honor. After listening to the many kind expressions of friendship, his speech in reply was one which indicated the deep, strong heart of the man. "I have ever striven to do my duty, and have never turned from what I knew to be right. My account I must give to God." Rarely is there seen so complete and so completed a life.

A stanch member of the Presbyterian Church, even in his busiest years he was seldom absent from his place at service either in the morning or in the evening, thus practically illustrating the truth that a man can do more work and better work in six days than he can in seven. He never operated on the Sabbath, except in accident cases. On one occasion he astonished one of the younger members of the profession, with whom it became necessary to make a trip into the country on Sunday, by fixing the hour at 6 A.M. It is almost unnecessary to say that he returned in time to be in his accustomed pew.

Best of all, he carried with him through the week all the ennobling influences gained by a daily resort to the throne of grace, and he possessed all the Christian principles which made him a power in the community, in the college, and in the profession.

His death was, as he would have desired it, a quick transition from a busy life to an eternal reward. Thoroughly occupied each day, he left the operating-table disabled by an attack of angina pectoris, due, as was afterwards proved, to ossification of the coronary artery. He had told the writer on several occasions that after undue exertions these anginose pains had given him decided discomfort. All who were present during the excitement of his closing speech in 1889, when he retired from his active duties at the University, will remember the unutterable shock that was imparted when he suddenly reeled. He never recovered fully from the effects of an attack of epidemic influenza two years before his death. On several occasions he had passed renal calculi, and there had been slight manifestations both of diabetic and albuminuric conditions. After the attack of angina pectoris alluded to, there speedily followed bronchial and renal complications, and the immediate cause of his death was uræmia. He died on March 22, 1892, respected, loved, honored, not only in the profession but also by the community and by multitudes throughout the land.



The tributes of respect at his funeral were most touching. Sympathizing friends were unable even to gain admittance to the church. A most eloquent tribute to his memory was preached by his friend and pastor, Rev. J. S. MacIntosh, D.D., which has already been published.

Strong of body, earnest of soul, honest of purpose, skilful of hand, keen of eye, and quick of perception, he combined all the elements of permanent success.



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## ORIGINAL COMMUNICATIONS.

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### *AN EXPERIMENTAL INQUIRY CONCERNING ELASTIC CONstriction AS A HÆMOSTATIC MEASURE.<sup>1</sup>*

BY NICHOLAS SENN, M.D., PH.D., CHICAGO,

Professor of Practice of Surgery and Clinical Surgery, Rush Medical College ; Professor of Surgery,  
Chicago Polyclinic ; Attending Surgeon, Presbyterian Hospital ; Surgeon-in-Chief,  
St. Joseph's Hospital.

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ELASTIC constriction in the treatment and prevention of hemorrhage is a procedure which has been known for a long time, but it required the genius and influence of the distinguished von Esmarch to give it a permanent place in the practice of surgery. During the last decade, circular elastic constriction has almost completely displaced all other methods of securing temporary hæmostasis. This method of preventing or arresting hemorrhage in the treatment of wounds and the operative removal of surgical affections of the extremities is so simple, and the means required are so accessible, that it is now almost in universal use, and the different forms of tourniquets heretofore in use are for substantial reasons regarded by the modern surgeon as objects of antiquity. When first introduced as an aid to the surgeon, its inventor aimed at rendering the tissues on the distal side of the constrictor perfectly bloodless by applying, from the periphery of the limb to the point of constriction, an elastic bandage. This part of the technique of "bloodless" operating is not only unnecessary but harmful.

*Dangers attending Elastic Compression of a Limb.*—Compression of a limb by an elastic bandage, as a preliminary step to elastic constriction, secures

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<sup>1</sup> Read before the National Association of Railway Surgeons, Point Comfort, Va., May 28, 1892.



for the tissues the seat of injury or the field of operation perfect ischæmia, but is attended by two sources of danger: 1. When resorted to in the treatment of a recent injury or an infective inflammation, it might force pathogenic microbes from the wound or the seat of inflammation into the general circulation, thus adding a general to a local infection, with all the additional risks incident to such a condition. 2. In operations for malignant disease, carcinoma or sarcoma, it might force tumor-cells into the surrounding tissues, or through the lymphatic or blood-vessels into the general circulation, causing thus regional or general dissemination of the disease. These two sources of danger are not imaginary but real, and every surgeon with considerable experience can recall instances where elastic compression could be made answerable for the diffusion of an inflammatory process or the dissemination of a malignant tumor. Fortunately, Lister's experiments on the horse have demonstrated that for all practical purposes bloodless operations can be made without the use of the elastic bandage by simply placing the limb in a vertical position for a few minutes prior to the application of the constrictor.

*Diminution of Blood-Supply to the Limb by Gravitation.*—The influence of the force of gravitation on the supply of a limb becomes apparent by placing the arm in different positions. If one of the upper extremities is allowed to hang by the side of the body, and the muscles are fully relaxed, the veins become turgid, the capillaries distended, and the volume and force of the radial pulse markedly increased, and a sense of fulness and weight is experienced. If the arm is now elevated and held in the vertical position, within a few minutes the cyanosed appearance of the skin disappears and gives way to pallor, the overdistended veins collapse and are emptied of their contents, the radial pulse loses much of its volume and force, and the sense of weight and fulness is promptly relieved. If the limb is maintained in this position for five minutes, it is emptied of blood sufficiently to render operations, for all practical purposes, bloodless at any point below the elastic constriction. If an anæsthetic is used, elevation of the limb and the application of the elastic constrictor should not be done before the patient is thoroughly under the influence of the anæsthetic, as muscular relaxation is a material aid in securing a comparatively bloodless condition of the limb.

*Form and Application of Constrictor.*—Many surgeons have been in the habit of using a small solid rubber cord or a rubber tube of small size as an elastic tourniquet. Both of these forms of elastic constrictor are objectionable, as in either instance linear constriction is made, which, particularly if the force employed be excessive, as is so often the case, is so liable to cause temporary or permanent damage of some of the important tissues interposed between the skin and the underlying unyielding bone. The compression should include a ring at least two inches wide, in order to distribute the pressure over a larger area, in which event important structures are more likely to escape injury.



The best instrument for elastic constriction is a strong band of rubber at least an inch in width, of which at least two turns are applied side by side. In the absence of such a constrictor a soft rubber tube half an inch or more in diameter, an ordinary rubber bandage, or an elastic suspender should be used. As soon as the limb has been drained of its blood to the requisite extent by position, the constrictor is applied with sufficient firmness to interrupt at once both the arterial and the venous circulation. Simple as this advice may sound, it is nevertheless a fact that frequent mistakes are made in applying the constrictor properly. It is of the utmost importance that the pressure should first be made on the side of the limb occupied by the principal blood-vessels. If pressure is made first on the opposite side of the limb, the superficial veins are constricted first, and before the arterial circulation is interrupted, the limb presents a cyanotic appearance, caused by an intense passive venous stasis. If, on the other hand, the elastic pressure is applied in such a manner as to arrest the principal arterial blood-supply first, venous return in the superficial veins is not interfered with until the circular constriction is completed, and the limb below the constriction is then in a comparatively bloodless condition, and remains so after the application of the constrictor. Some tact and experience are necessary in regulating the force required to interrupt quickly and completely the arterial and venous circulation. Less force is required, of course, when the main blood-vessels are near the surface and close to a bone than when a thick layer of muscles is interposed between skin and blood-vessels or between blood-vessels and the underlying bone. Pressure beyond the required degree, especially if continued for an hour or more, is liable to result in injury of muscles and nerves, and should be carefully avoided. Instead of using the chain, or tying the constrictor in a knot, it is better after encircling the limb at least twice to cross the constrictor and fasten it between the blades of a heavy hæmostatic forceps. A well-recognized disadvantage of elastic constriction as a hæmostatic measure is *increased parenchymatous hemorrhage*.

The profuse capillary oozing which so often follows the removal of the elastic constrictor is undoubtedly, at least in part, due to a temporary vasomotor paresis caused by the constriction. This result is obviated most successfully by keeping the limb in an elevated position at the time the constrictor is removed, and by maintaining this position for at least six hours. The intravascular tension is reduced to a minimum by elevation of the limb, and this condition is most conducive to the formation of a minute thrombus in each of the small vessels—capillaries, arteries, and veins—divided during the operation. Another exceedingly useful resource in diminishing unnecessary loss of blood, after all visible vessels have been ligated and the constrictor has been removed, consists in making firm pressure against the wounded surface. This is most effectually done by using a moist compress of gauze large enough to cover the whole surface, which is firmly held against the wound with one or both hands. After an amputation, for instance, all the principal vessels should be sought for and tied before the constrictor is



removed, and the limb held in a vertical position. A compress of moist gauze is then placed against the wound surface, the flaps brought over it, and firm compression made over the end of the stump with both hands for at least five minutes. If the capillary oozing does not yield to this treatment the wound should be irrigated with sterilized water at a temperature of 110° F., which makes a delicate white film on the surface, and has a very prompt effect in definitely arresting the bleeding. In obstinate cases the addition to these expedients of an application of peroxide of hydrogen serves an excellent hæmostatic purpose, and does not interfere with primary union of the wound.

Other complications arising directly from elastic constriction are—

*Temporary Loss of Muscular Power and Nerve Paralysis.*—These consequences undoubtedly are often the direct outcome of a faulty use of the constrictor. The experiments related below show conclusively that firm constriction, continued for several hours, almost invariably results in loss of function of the limb, which continues for several days or weeks. In these instances the disability was undoubtedly due to injury of the constricted muscles. If in the use of the constrictor more force is used than is necessary to interrupt the circulation, and particularly if linear pressure is made, injury of the muscles exposed to this undue pressure is very likely to be produced. The same can be said of injury to the nerves from the same cause. Two cases of nerve paralysis resulting from elastic constriction have occurred in my own practice.

The first case was a young man who was the subject of necrosis of the radius. Elastic constriction was made just above the elbow-joint at a point where the musculo-spiral nerve is almost subcutaneous. The operation lasted about an hour. The next day it was discovered that the patient was unable to extend the hand. The operation was performed under strict antiseptic precautions, and the wound healed without suppuration. The function of the nerve was destroyed as completely as though it had been divided. Massage and electricity were used at the end of the second week, but no signs of improvement were noticed before the expiration of two months, and function was not fully restored at the end of three months. During this time muscular atrophy was noticeable. With the restoration of nerve-function muscular nutrition set in, and eventually the use of the hand and forearm was restored to perfection.

The second case was a student suffering from extensive necrosis of the tibia. Elastic constriction was applied just above the knee-joint. The disease involved nearly the entire shaft of the tibia. The skin flaps were turned inward into the deep gutter and fastened with aseptic bone-nails. Necrosis of the margins of the wound set in, and the extensive cutaneous defect was replaced by a slow process of granulation, cicatrization, and epidermization, which required several months to complete the healing process. Soon after the operation it became evident that the function of the peroneal nerve had been destroyed by the elastic constriction. Electricity

and massage proved of no avail in restoring nerve-function. Two years after the operation the paralysis remained and has persisted to the present time.

For the purpose of preventing injurious pressure on nerves from elastic constriction it is necessary to tie only with sufficient firmness to interrupt the arterial and venous circulation, and the pressure should not be linear, but distributed over a wide area, a ring at least one inch or two in width. The last requirement is best attained by using a wide band, or if an elastic tube or cord is used the limb should be encircled several times, each turn drawn with uniform force and arranged in such a manner as to compress with equal firmness a wide circle, thus exerting the same effect on the tissues underneath as pressure made by a wide band. If for any reason the constriction cannot be made at a point where the principal nerves are well protected by a thick layer of muscular tissue, a thick compress of gauze should be placed between the constrictor and the limb, in order to protect the nerves against injurious pressure.

*Necrobiosis and Gangrene following Elastic Constriction.*—Experimental research has shown that an ischæmic condition and elastic constriction for two hours or more are liable to produce an unfavorable influence on the karyokinetic processes in the tissues deprived of blood for this length of time. This is a sufficient proof that prolonged constriction retards the healing process. Necrobiosis, slow healing, and necrosis of margins of the wound are some of the remote consequences which follow prolonged constriction of a limb. At the last meeting of the National Association of Military Surgeons in St. Louis, Major Hoff gave some highly interesting and instructive demonstrations of litter drill. I had the pleasure, at his request, to catechise one of the members of his corps in reference to elastic constriction as applied on the battle-field. I asked the young soldier how he would distinguish between arterial and venous hemorrhage. He pointed out very clearly the signs upon which he would depend in distinguishing between these two forms of hemorrhage. I further asked, "How long would you deem it safe to continue elastic constriction as a hæmostatic measure?" He replied that he never would allow it to remain longer than two and a half hours. This matter may become—perhaps it has already—the subject of serious medico-legal thought, and no one is in a better position, where he has such abundant opportunity in testing the reliability and safety of elastic constriction as a means of controlling hemorrhage, than the railroad surgeon. In the use of Esmarch's constrictor in arresting hemorrhage that threatens life, it is practically not necessary to distinguish between venous and arterial hemorrhage. It was the consensus of opinion of the members of the military section of the last International Medical Congress in Berlin that it is no longer wise nor practical to differentiate between arterial and venous hemorrhage in rendering the first aid to the wounded on the battle-field or in a case of accidental hemorrhage; that the one point that must be taught the soldier, the brakeman, and the conductor is that, if hemorrhage is so profuse as to



threaten life before medical aid can be summoned, it should be at once arrested by elastic constriction,—by a suspender if nothing else is at hand,—applied invariably on the proximal side of the seat of injury. The constriction must be made with sufficient firmness to arrest completely both the arterial and venous circulation, as has been repeatedly insisted upon above. By applying the constrictor only with sufficient firmness to diminish the arterial circulation the venous hemorrhage is increased. It is by overloading the tissues with venous blood by imperfect constriction that gangrene is invited and venous hemorrhage increased.

The following experiments were made for the purpose of studying the effect of prolonged elastic constriction on the nutrition of the parts excluded temporarily from the circulation. The constriction was made with rubber tubing a quarter of an inch in diameter, with which the limb was encircled at least twice, and tied with sufficient firmness to interrupt both the arterial and venous circulation completely. As the constriction appeared to produce considerable pain, the animals were kept fully under the influence of morphine, which was administered subcutaneously, usually in divided doses. I am greatly indebted to Dr. C. W. Oviatt, of Oshkosh, Wisconsin, for valuable assistance in conducting these experiments.

#### CONSTRICTION EXPERIMENTS.<sup>1</sup>

##### *First Series.*

1. Large female dog. Constriction above knee-joint by three turns of strong elastic tubing. Time of constriction six hours. Cut the posterior tibial artery and vein before removal of constrictor. About a tablespoonful of dark blood escaped, soon followed by bright arterial blood. Circulation restored. Dog killed to secure bone-plate specimen from operation six weeks previous.

2. Medium-sized male dog. Constriction above ankle-joint. Time of constriction eight hours. Plantar artery cut before removal of constriction. About a teaspoonful of dark blood escaped. Arterial hemorrhage appeared a few minutes after removal of constrictor. Dog killed.

3. Large female dog. Constriction by three turns of tubing above elbow-joint. Time of constriction three hours. Limb perfectly cold below constriction. Pulsations distinct a few moments after removal of constrictor, with prompt increase of temperature. Puncture yields arterial blood. Limb useless. Recovered the full use of limb in fifteen days.

4. Large male dog. Constriction by three turns above wrist-joint. Time of constriction seven hours. Pulsations distinct soon after removal of rubber tubing. A deep groove in muscles at point of constriction. Was unable to use the limb at all for five days. Recovery complete in nine days.

5. Male puppy. Constriction by two turns above knee-joint. Time of constriction three hours and thirty-five minutes. Return of pulsations prompt after removal of constrictor. Puncture in sole of foot followed by free hemorrhage. Recovered the use of limb in four days.

6. Male poodle. Constriction above knee-joint. Time of constriction two hours and twenty-five minutes. Return of circulation prompt after removal of constrictor. Recovered in three days.

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<sup>1</sup> Experiments performed February 14, 1892.

7. Large female dog. Constriction above elbow-joint. Time of constriction four hours. Deep gutter in muscle at point of constriction after removal of tubing. Pulsations felt distinctly almost immediately after removal of constrictor. Limb entirely useless for four days. Did not fully recover until twelve days.

8. Female pug. Constriction by three turns above the knee. Time of constriction five hours. A deep groove at point of constriction. Pulsations distinctly felt soon after removal of constrictor. Fully recovered on the ninth day.

9. Small male dog. Constriction above knee-joint. Time of constriction four hours and thirty minutes. Prompt return of circulation after removal of constrictor. Limb entirely useless for two days. Entire recovery in six days.

10. Small male dog. Constriction above the elbow-joint by three turns of tubing. Time of constriction five hours and thirty minutes. Deep groove at point of constriction. Pulsations appeared almost immediately after removal of constrictor. Limb entirely useless for five days. Complete recovery in ten days.

### *Second Series.*<sup>1</sup>

1. Large male dog. Constricted at 8.30 A.M. Constriction by means of stout rubber tubing, two turns, just above the wrist. Removed at 9.30 P.M. Time of constriction thirteen hours. One and one-third grains of morphia sulphate were administered hypodermically in divided doses during this time. Puncture of palm before removal of constrictor yields dark venous blood. Deep gutter in tissues at point of constriction. Blood became arterial. Pulse perceptible.

May 10, limb still badly swollen and useless.

May 12, begins to step on foot.

May 14, recovery complete.

2. Medium-sized female dog. Constricted at 8.35 A.M. Constrictor applied by two turns above the wrist. Removed at 11.35 P.M. Time of constriction fifteen hours. Limb greatly swollen. Deep cut in palm before removal of constrictor yields only slight venous oozing. After removal, bleeding soon became arterial. Pulse perceptible almost immediately after removal of constrictor. Soft tissues at point of constriction seemed almost divided subcutaneously. One and one-third grains of morphia sulphate injected in divided doses.

May 10, limb greatly swollen and useless.

May 12, about the same condition.

May 14, swelling somewhat decreased.

May 16, much better, uses the foot.

3. Medium-sized female dog. Constricted 8.40 A.M. Constriction above elbow by three turns of tubing tightly drawn and tied. Removed at 1.10 A.M. May 10. Time of constriction seventeen hours. Palm incised before removal of constrictor yields a little dark venous blood. In ten minutes blood becomes somewhat lighter in color but does not flow freely. In twenty minutes pulse could be detected, but was very indistinct. Leg greatly swollen. Soft parts appeared nearly divided subcutaneously at point of constriction. One and one-third grains of morphia sulphate injected in divided doses.

May 11, limb swollen as much as ever.

May 14, limb still swollen; entirely useless; begins to show discoloration.

May 15, gangrene complete.

4. Medium-sized male dog. Constricted at 8.45 A.M. Constrictor applied by two turns above the wrist. Removed at 3.45 A.M. May 10. Time of constriction nineteen hours. Limb much swollen, hard and cold. Deep cut in palm before removal of constrictor yields a few drops of venous blood. Deep gutter at point of

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<sup>1</sup> Performed May 9, 1892.



constriction. Blood becomes lighter in color in five minutes, and in ten minutes pulse was perceptible. Circulation fully restored in twenty minutes. Three-fourths of a grain of morphia sulphate injected in three doses.

May 12, foot still swollen, but uses it at times.

May 15, uses the foot quite well, but the limb is still swollen.

5. Large male dog. Constricted at 8.50 A.M. Constrictor firmly applied above the elbow by three turns. Removed at 5.50 A.M. May 10. Time of constriction twenty-one hours. Limb enormously swollen. Deep cut in palm before removal of constrictor yields a little venous blood. In twenty minutes blood flowed a little more freely and was somewhat lighter in color. In thirty minutes the pulse was indistinctly felt, and blood was arterial. One and one-half grains morphia sulphate were injected in divided doses.

May 11, limb still swollen; pulse normal.

May 13, limb still greatly swollen and useless.

May 14, swelling undiminished.

May 16, swelling subsiding; sensation is normal, but the limb is completely limp and useless.

Condition of limb five weeks and two days after constriction.—Limb entirely useless. Drags foot upon the ground without the least ability to raise it. Somewhat larger than its fellow. Circulation feeble but distinct. Dog killed.

Post-mortem appearances.—Tissues pale and œdematous. The radial artery and median nerve show marked changes at point of constriction.

6. Medium-sized female dog. Constricted at 9 A.M. Constrictor applied by three turns above the wrist. Removed at 11 A.M. May 10. Time of constriction twenty-six hours. Limb greatly swollen. Deep gutter at point of constriction. Palm freely incised before removal of constrictor yields dark blood. In ten minutes blood becomes lighter in color, and in twenty minutes pulse is distinct, and bleeding arterial. One and a half grains morphia sulphate in divided doses.

May 12, foot still greatly swollen and entirely useless.

May 14, begins to use the foot.

May 16, very lame, but uses the limb.

It will be noticed by glancing over the details of the experiments that in most of the animals, where constriction was continued for more than two hours, the limb was either useless or the animal walked lame for a number of days. This temporary disability of the limb was undoubtedly occasioned not by pain but by injury to the constricted muscles. In the cases in which loss of function was continued for several weeks, there can be but little doubt that the pressure produced at the same time a nerve lesion, retarding the recovery until a sufficient time had elapsed for regeneration of the nerve to take place. In the median nerve removed after the experiment in which the constriction was continued for twenty-one hours, the essential histological nerve elements at the point of constriction could not be identified, and the nerve-fibres on the distal side showed all the appearances of far-advanced degeneration. Gangrene of all the tissues below the point of constriction was produced only once, and in this instance the constriction was made very firm, and continued for seventeen hours. The animal which was subjected to constriction for the longest time, twenty-six hours, recovered full use of the limb after the lapse of six weeks.

My clinical experience and the results of these experiments have induced

me to formulate my views on elastic constriction as a hæmostatic agent in the following conclusions, which I will submit to you for consideration and discussion :

1. The use of the elastic bandage to secure a bloodless condition of a limb should be discarded, as compression of the parts affected may produce mechanically dissemination of malignant tumors and microbic diseases.

2. A bloodless condition should be secured by elevation of the limb prior to constriction.

3. Constriction should be made with sufficient force to interrupt at once both the arterial and venous circulation.

4. Prevent venous stasis by constricting quickly, beginning pressure on the side of the limb supplied with the principal blood-vessels.

5. Linear or too firm constriction should be avoided, as they are liable to give rise to muscular injury and temporary or permanent paralysis due to harmful compression of a large nerve-trunk.

6. Elastic constriction of a limb for hæmostatic purposes should be diffused over an annular space not less than two inches in width, and can be made with least danger of injuring important structures by an elastic band made for this purpose or an ordinary elastic bandage.

7. Circular constriction of a limb should be made, if possible, at a point where the large nerve-trunks are well protected by overlying muscles, and if this cannot be done on account of the site of operation, a thick compress of gauze should be interposed between the constrictor and the limb.

8. The vitality of the tissues when excluded from the circulation is endangered by prolonging the ischæmic condition for three or four hours, and gangrene may take place if constriction is continued for a longer time.

9. The process of karyokinesis in tissues temporarily deprived of circulation by elastic constriction is unfavorably affected if constriction is continued for more than two hours.

532 DEARBORN AVENUE.

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## THE EXCRETION OF NITROGEN IN BRIGHT'S DISEASE.<sup>1</sup>

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WHEN determining whether the excretion of nitrogen in man is pathologically increased or decreased, a number of fundamental facts based on the physiology of metabolism have to be borne in mind. Of all the questions here to be considered, the following physiological law is of the utmost importance,—viz., a healthy man, practically sufficiently nourished, excretes

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<sup>1</sup> Paper read at the Society of Physicians in Berlin, May 16, 1892. Translated by Dr. Carl Fresé, of the German Hospital, Philadelphia.



as much nitrogen as he takes in. This excretion is carried on pre-eminently by the kidneys, and only to a small extent by the intestinal tract. This law of the parallelism of the excretion of nitrogen to the ingestion of nitrogen holds good in health, even under most varying conditions of nutrition, so much so that in health very small quantities of albumin—say, from forty to fifty grammes daily—and, on the other hand, much larger amounts may be utilized in keeping up the nitrogen equilibrium.

In disease these matters occasionally assume a different aspect. There are maladies in which the law quoted is violated. This is the case in most febrile processes. More nitrogen is found in the urine than was contained in the food, even if the diet was so constituted as to permit of keeping up the nitrogen equilibrium. On the other hand, there exist conditions in which for long periods less nitrogen is excreted through the urine and fæces than was contained in the food, notwithstanding that in health this food would have been sufficient to keep up the nitrogen equilibrium. This condition, for example, is found in convalescence from acute febrile diseases. The body while in the diseased condition had been rendered poorer in albumin and cells, and now eagerly retains albumin for the construction of new cells. In the former case there existed a pathological increase of the disintegration of albumin; in the other case the diminution of the latter was abnormally diminished, although this diminution cannot be described as pathological.

The question now arises, What are the conditions under which albumin is disintegrated in nephritis? Let us keep in mind simple non-complicated nephritis. Is the disintegration of albumin in nephritis subject to other laws than in health—*i.e.*, to other conditions than those which are exclusively determined by the quality of food? This question has to be answered thus: that at present no reasons exist for such an assumption. It is, indeed, possible, and, if it be permissible to judge by analysis, even probable, that in suddenly supervening uræmia all kinds of toxic substances circulate in the organism which exert a harmful influence on the life of the cells, destroy protoplasm, and by that means cause an increase in the sum total of nitrogenous catabolic products. But apart from uræmia, neither acute nor chronic nephritis is a disease which, respecting its reaction on all the metabolic processes, is similar to such diseases,—as fever, phosphorus-poisoning, diabetes, carcinoma, and progressive anæmia, in which latter augmented catabolism of albumin has been demonstrated. Much less cause exists to grant that diseases of the kidneys cause diminution of the disintegration of albumin. I therefore propose as the first statement, that in non-complicated nephritis the decomposition of albumin as such offers us no grounds to assume that the excretion of nitrogen is different from that in health under similar conditions of nutrition. If, therefore, differences in the elimination of nitrogen are found, two causes may be assigned for it.

1. It may be due to the intestinal tract. It may be that nitrogenous substances are less adequately absorbed from the intestines of patients suffering from kidney-disease than from the intestines in healthy individuals, or that

more nitrogen-holding substance is separated from the body into the intestines, and excreted with the fæces, than in health. In both cases the urine would contain less nitrogen than should be expected, judging from the composition of the food.

2. The difference may be due to a pathological change in the kidney secretion,—*e.g.*, that indeed in the body the normal quantity of nitrogen holding metabolic products is produced, but is not completely discharged in consequence of insufficiency of the filtering apparatus of the kidney, and is retained partly in the body.

We have to consider the metabolism in kidney-disease from these two stand-points. With respect to the activity of the intestine in kidney-disease, it has to be kept clearly in view that it is possible to ascertain with certainty, only after several days' complete abstinence from food or with food entirely free of nitrogen, whether in nephritis more than the normal amount of nitrogen flows into the intestine, either in the form of the usual secretion or in the form of urea, which, refused at the portals of the kidney, now empties itself into the gut. Such exact researches, however, have not been published up to the present time, and it is therefore impossible to determine whether any existing increase of nitrogen in the dejecta is due to increased excretion of nitrogen into the intestines, or to diminished absorption of proteid substances.

Another avenue of approach to this question would be the qualitative examination of the nitrogenous substances in the intestinal canal. Urea, indeed, has been found in the saliva, and much more rarely and in less quantity in the gastric contents of patients suffering from kidney-disease; this urea, of course, must have got there either by secretion or transudation. These quantities, however, are extremely small, and seem in the saliva not to exceed per day fractional parts of a gramme, even after the exhibition of pilocarpine. The positive presence of urea in the saliva, and the absence of it simultaneously in the stomach, makes it even probable that the urea found in the saliva is not permanently lost to the circulation, but, as in health, is partially reabsorbed in the stomach.

If, indeed, *larger* quantities of urea appear in the intestinal tract, this can take place only in the lower sections of it. This, perhaps, holds good for grave uræmic conditions; but this assumption is not admissible in the intervals without uræmia.

Proofs for this are the values of nitrogen in cases of nephritis. The excretion of nitrogen in the fæces has now been frequently examined carefully. I myself was able, together with Ritter, to report sixteen series of experiments, nearly as large as the combined sum of observations by Fleischer, Prior, P. Müller, Kornblum, and Mann.

On studying all these cases, the result obtained by Ritter and myself is confirmed, *viz.*:

1. In most cases of nephritis, the loss of nitrogen through the fæces is not greater than in health.



2. In the minority of cases more nitrogen is excreted with the fæces than in health. The quantity may increase to twice that in the normal condition, but still its absolute quantity is only small, exceeding that in health by fractions of, or at the utmost by, one gramme.

3. The increase of the excretion of nitrogen is not pathognomonic of any one distinct form of nephritis,—it may be present in each kind, likewise it may be absent in each.

4. In the same case, the excretion of nitrogen in the fæces may be subject to great oscillations,—being sometimes perfectly normal, at other times pathologically increased.

5. From the symptomatology of the disease no conclusions can be drawn concerning the loss of nitrogen with the fæces.

All these researches refer to cases of kidney-disease at a time when no uræmia existed, or when only slight uræmic conditions were present. These matters may be different in uræmia, especially with coexisting violent diarrhoea. But it seems to me useful, both here and later, to exclude uræmia, and to postpone the questions concerning the excretion of nitrogen during this condition until further more complete qualitative researches are accessible.

To return to the former question, it must be stated that in acute and chronic nephritis a little more nitrogen may appear in the fæces than in health, but that nearly always these quantities are not large enough to exert any influence on the sum total of urea. After excluding the results of the decomposition of albumin, and the fact that the conditions of absorption in nephritis alter the nitrogen elimination essentially from that in health, it has to be considered to what an extent the alteration in the secretion of the kidneys is able to effect this. This question, too, has been lately so frequently and carefully studied that a definite decision concerning many points bearing on this subject may be reached. Frequently judgment is easy,—*e.g.*, in acute nephritis. There exist cases in which for days no urine, or only an extremely small quantity, is evacuated. Nitrogen-holding decomposition products of this period are for the major part stored up in the body, and are expelled copiously only at a later period, together with newly-produced catabolic products, after excretion has been resumed. In the *first* period, therefore, *less* nitrogen is found in the urine, while in a later period, which is coexistent with the healing process, *more* nitrogen than corresponds to the temporary decomposition of the albumin is eliminated.

Such a condition of things is found, as stated before, frequently in acute nephritis; but even here I should like to point out that this does *not* take place regularly, for there are, doubtless, cases of acute hemorrhagic nephritis with diminution of the quantity of urine, marked albuminuria, copious sediments, and high specific gravity of the urine, in which the elimination of nitrogen is altogether satisfactory. I have several times met with such cases of inflamed kidneys supervening in the course of infectious diseases. However, I would designate such cases as exceptional, and propound the

statement that in acute nephritis in previously healthy individuals retention of nitrogen is the rule. How long this condition may be prolonged, and how large may be the possible quantities of urea and other uriniferous nitrogenous substances that are capable of being stored up in the body, I cannot answer from personal experience, and other investigators have not published anything definite on these points. My own researches, which embraced exact analyses of food, urine, and fæces for prolonged periods, are useless in consequence of the fact that therapeutic considerations compelled me to employ Turkish (Schwitzbäder) baths.

We will now, however, leave the subject of acute nephritis, and consider the elimination of nitrogen in chronic Bright's disease.

Bartels has already found out the most important point, and that, too, by simple means, and without the complex apparatus of exact metabolic researches. Bartels observed cases in which for a long time surprisingly little nitrogen was excreted in the urine, and other cases where these quantities were exactly normal, and again others where the quantities of nitrogen exceeded the normal.

A distinct difference between parenchymatous and interstitial nephritis cannot be made out from the researches of Bartels. Rosenstein (Leiden) arrived at similar results. Since then there have been numerous contributions published, especially very recently, on this subject, which fulfil the claims required by exact examinations on metabolism (Fleischer, Von Noorden and Ritter, P. Müller, Kornblum, and Mann).

The following results may be considered as definite:

1. Many patients with contracted kidney, and also patients with chronic parenchymatous nephritis, may have perfectly normal excretion of nitrogen through the urine,—exclusively dependent on the state of digestion and on the nutrition. With this statement I directly oppose those who, basing their results on simple filtrations of urea without analytical control tests of the food and the fæces, assert that diminished elimination of nitrogen is a regular and typical symptom of chronic nephritis (Bond, Lifchitz). In other cases of chronic nephritis—both the parenchymatous and interstitial varieties—considerably less nitrogen was found in the urine and fæces than corresponded to the food and the probable decomposition of albumin; the difference amounted to several grammes per day. I specially mention one case in which in five days, with a total ingestion of eighty-eight grammes of nitrogen, twenty-four grammes did not reappear in the urine and the fæces (Von Noorden and Ritter). Similar cases have been observed repeatedly.

What happens to the nitrogen which is not found? It may be certainly excluded that it is eliminated otherwise than in the urine and fæces. Neither the old assertion that nitrogen refused by the kidney is exhaled as  $\text{NH}_3$  has been confirmed, nor may the correct observation of Bartels and Schottin, that during the crisis of the uræmic attack urea is excreted through the pores of the skin, be generalized for the anuræmic time. I may add the results of my own observation to the fruitless endeavors of



others to demonstrate urea in sufficient quantities in the skin secretions of patients suffering from nephritis but free from uræmia. Two years ago I collected in rubber receivers the perspiration of patients with kidney-disease who had had hot baths or pilocarpine injections, and then analyzed the secretion during and after the sweating, and I calculated the loss of  $H_2O$  and N according to the variations in the body weight. Even when one and one-half to two kilos of perspiration were secreted I never found more than one-half gramme of nitrogen. This therefore is a very small quantity in contrast to the large deficiency in nitrogen which is frequently found, and quantitatively this is of small importance. When special sweating procedures are absent the quantity of nitrogen is probably still less. Therefore nothing remains but to assume that the nitrogen which is not excreted is deposited in the body, probably as urea, which indeed has frequently been found in the tissue fluids and the blood of patients with nephritis.

Here I must add that the quantity of nitrogen retained in nephritis is totally independent of the degree of œdema. Nitrogen may be retained without a trace of œdema, and the elimination of nitrogen may be perfect notwithstanding the existence of considerable œdema. Simple *a priori* consideration must show that, in cases of chronic nephritis where by metabolic experiments retention of nitrogen has been observed, the latter condition cannot be permanent, otherwise the nitrogenous catabolic products would have to be stored up in the body in quantities not of grammes but of kilos. A satisfactory explanation may be found in the demonstration which Ritter and I have given, that in the course of chronic nephritis great differences are found in the power of the kidney to secrete nitrogen. Periods of bad excretion vary with those of good excretion, and during the latter period nitrogenous refuse matters, the products of albuminous disintegration which had been stored up together with new excretory matter are expelled copiously. Meanwhile Ritter and myself have continued our researches, partly with the same patients about which we reported some time ago, partly with others. The great variation of the elimination of nitrogen in particular cases I have always found confirmed. In one case of chronic parenchymatous nephritis I obtained particularly convincing results. The female patient, twenty-two years old, had during the first experiment retained nothing of fifteen grammes of nitrogen. Two months later three and a half grammes per day were retained in the body, and yet one and a half months later fifteen grammes were daily taken in and seventeen and a half grammes were excreted. (Each experiment lasted five days.)

The patient no doubt was in a favorable stage of the disease during the first and last experiment and in an unfavorable stage during the second. From these and other experiments it follows that there does not exist a typical even proportion between the ingestion of nitrogen and the elimination of nitrogen in chronic kidney disease, but the distinctive character of the disease is reflected by the variability of these proportions of the metabolic changes.

After ascertaining these facts, a few questions have to be considered which are of interest in respect partly to the symptomatology, partly to the therapeutics of these affections. So far I always have discussed both chronic parenchymatous nephritis and contracted kidney under the same heading, and I think I am fully justified in so doing, for the metabolic researches on the elimination of nitrogen which so far have been published do not afford a guide to the differentiation of both varieties of this disease. After the variability of the nitrogen elimination in both affections has been proved, it must be considered merely an accident if in a short series of experiments more retention of nitrogen is found in one than the other form. Only experiments lasting for weeks or even months will elucidate whether the behavior of these two diseases is different with respect to the elimination of nitrogen. At present we have not these data. I therefore have to consider it as a purely theoretical explanation, which has not been verified, when fundamental differences concerning the nitrogen elimination in both diseases are taught.

The second question refers to the proportion of nitrogen retention to the uræmic condition. The accepted views at present are not borne out sufficiently by the results of experiments to grant that nitrogen retention always precedes the uræmic attack, and, the reverse, that comparatively large elimination of nitrogen removes the danger of uræmia. I came to this conclusion mainly by considering the observations of P. Müller and those of Ritter and myself. It has to be granted, however, that our experience so far is too limited to allow us to establish final conclusions regarding this subject. We must endeavor, nevertheless, to avoid or at least to diminish retention of nitrogen in chronic nephritis. I think we have to keep this in view notwithstanding that there does not exist an apparent relation between the nitrogen elimination and the general condition of the patient, for I and others have observed that we may find an excellent subjective state with nitrogen retention, and, on the other hand, copious elimination of nitrogen and yet all kinds of alarming symptoms.

This object is congruent, finally, with the cure of nephritis. This is not the place to discuss the means to attain this object. But here I must touch upon a therapeutic question which has been frequently discussed during the last few years, viz., *the influence of albuminous food on the kidney*. For a time much was written and talked about the question whether a food rich in albumin would increase or diminish *albuminuria*. I think we may now assert that this is of small importance,—of no importance at all in some cases, in others, again, only slight or transitory. Thus it has been found that in the first few days after augmenting the albumin of food the *albuminuria* was increased, but that afterwards the quantity of albumin sinks to that which had previously prevailed. The large number of researches did not result in any sure therapeutic guide for practice; therefore the whole question of the dependence of *albuminuria* on the albuminous food was dropped.

On the other hand, the researches of the last years have led to discussions



whether when food poor in albumin was given the albuminuria would be diminished more than after food rich in albumin. It was further stated that if large quantities of nitrogenous catabolic products were offered to the kidney this organ would have to work harder, and if so, this could be but unfavorable to the kidney, therefore, rather ought the latter to be kept quiet, and this could be brought about by allowing but little albumin and plenty of non-nitrogenous material.

The first question can be experimentally examined in the sick individual, and various observers have done so. It was found that diseased kidneys could elaborate considerable quantities of nitrogen,—*e.g.*, fifteen grammes or more per day. But it was also seen that in other cases with restricted diet, containing only eight or nine grammes of nitrogen, yet nitrogen was retained. This confirms my statement made at another place that the nitrogen elimination is dependent more on the momentary condition of the kidneys than on the nitrogen percentage of the food and its influence on the diseased organ. Therefore in nephritis there does not exist a sharp line where we can say that, if more albumin be now taken in, retention of nitrogen will be the result. The quantity varies, and if that is taken as the standard in order not to overload the tissues with urea, nothing remains but to make very frequently, even continuously, nitrogen examinations of the food, the urine, and the fæces. By thus constantly trying one might succeed in keeping the allowance of albumin in nearly such proportions as the kidneys each day would be able to elaborate and eliminate. Whether this most difficult research would be of any practical utility is, however, very doubtful.

Kornblum has lately asserted and tried to prove that a chronically impaired kidney is able to keep up a steady elimination of nitrogen as long as the albumin taken in is kept at the same amount all the time, but that when the latter quantity varies, nitrogen retention would result. Although I willingly grant that this was so in the cases examined by Kornblum, I cannot grant, when I consult my own experience, that this is typical of chronic nephritis. This observation of Kornblum, however, is interesting and deserves to be further studied. It seems to teach us that when large quantities of albumin are given constantly the stoppage in the kidney may be opened up, as it were, and the diseased organ may be getting accustomed to a greater amount of work than it usually is able to overcome, when the amount of nitrogen capable of building up urea varies from day to day.

The other question—*viz.*, whether it is of use for a patient with kidney-disease to take food poor in albumin, and by so doing reduce the work of the affected organ—cannot be answered by experiments. This is a question which can be decided solely by practical experience, and then, unfortunately, the personal equation of the observer has to be taken into consideration.

In this place I do not intend to discuss the numerous differences of opinion expressed by very prominent physicians on this point. I hope that among the gentlemen present some will report their practical experience,

as it must be granted that the experiments made in this direction are totally insufficient. But it is my duty to take a decided stand on this subject; and I do so with confidence, as I have devoted most particular attention to the question of the diet in kidney-disease since I commenced the study of albuminuria (*Deutsches Archiv für klinische Medizin*, Band xxxviii., 1886), and which I have constantly continued while being occupied with the various points concerning nitrogen elimination.

Food poor in albumin but rich in carbohydrates is of great value in the short florid stage of acute Bright's disease, and in the sudden aggravations of chronic kidney-disease, and in commencing uræmic conditions. Such food spares the kidneys and does no harm to the rest of the organism, as nourishment poor in albumin is well borne for a short time. Any disadvantage of this diet can soon be remedied later on.

The aspect is different in ordinary Bright's disease, either in the interstitial or parenchymatous forms, which run their course uniformly, or with but slight variations, either for good or bad. In these conditions food poor in albumin cannot be recommended. This principle of diet, let it be remembered, would have to be kept up,—not for days and weeks, but for months and years; otherwise the whole attempt would be without result. But before this method can be tried we will, no doubt, encounter a number of theories badly supported.

Diet poor in albumin is, *perhaps*, useful for the kidney,—nothing *certain* is known about it; but it must be apprehended that such food is injurious to the organism as a whole. By so acting the first axiom in therapeutics would be violated, namely, one may always expect a favorable reaction on the diseased organ if one succeeds in strengthening the whole body.

Our experience at the bedside so far does warrant the conclusion that, within certain by no means narrow limits, one gramme of albumin is of more value in increasing the resistance of the patient than those 4.1 calories which would be produced by one gramme of sugar.

The advantage of increased resistance of the body as a whole is greater than the danger of increased retention of nitrogen, judging by experiments on metabolism. The urea remains in the tissues, and waits until it can be discharged, when by good, rich, albuminous food an alteration in the local conditions has been brought about.

The undoubted success of milk diet in many cases cannot be utilized in arguing against the position taken. This good result rather speaks for a diet rich in albumin, for milk is eminently an albuminous food. Two litres of good milk contain seventy grammes of albumin. If to this be added white bread, which is the most natural supplement for the not quite sufficient nourishing value of two litres of milk, then the amount of albumin at once is increased eighty to ninety grammes,—*i.e.*, a quantity which rarely is exceeded in the diet allowed to patients.

I have never received the impression at the sick-bed that any harm is done to patients with kidney-disease, even when larger quantities were



given ; and I desire to express my opinion that patients with chronic kidney-disease, and particularly those with contracted kidney, feel best if they eat ordinary food,—of course as long as it is not irrational ; and that experiments with various dietetic measures only do harm.

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BY THOMAS B. WANAMAKER.

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As is well known in France, Madame Boucicault, who died on December 18, 1887, appointed the "Assistance Publique" her residuary legatee. After deducting the private bequests enumerated in her will, she judged there would remain for the Assistance Publique about eight million francs, and she stipulated that if the remainder were found to be very much less than this amount it should be employed for the improvement of the condition of existing hospitals, but that if her hopes were realized a hospital to bear the name "Boucicault" should be constructed in Paris, if possible on the left bank of the Seine, not far from the Bon Marché. She specified that in the erection and management of the hospital the Assistance Publique should keep pace with modern science in every particular, and further that six rooms should be reserved for the employés of the Bon Marché.

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<sup>1</sup>Translated from "Le Journal de Débats," Paris, May 15, 1892.

Considerable time passed before it was possible to carry out the wishes of the testatrix. It was necessary, in the first place, to wait until considerable litigation was settled and until the Assistance Publique could accept the legacy with full authority. Such power was conferred by a decree dated July 19, 1889. But then, as the remainder was not sufficient after all bequests had been complied with, the Assistance concluded to wait until the amount remaining, with interest thereon, should reach the required eight millions.

However, in 1890, the trustees bought a piece of land containing 20,684 metres (about five acres), situated in the Vaugirard Quarter, between the Rues de Cévennes, de Lourmel, and de Vouille. A serious consideration of the project in all its details was then commenced. The Assistance is now in possession of the eight million francs, and the programme for the construction adopted by the board of management has just been submitted to the Municipal Council for consideration at its next session. There now remains only the choice of plans, and it is expected that work will commence before the winter sets in.

In conformity with the desire of Madame Boucicault, the latest discoveries in science will be utilized for the perfection of the service, particularly in the department of Surgery, which will be fitted out in accordance with the latest methods and for the application of the most rigorous asepsis. There will be a distinct service for those cases where suppuration has developed, as well as for the non-suppurating cases, which will necessitate a double service of both men and women. Such a plan will require considerable outlay. Of the eight million francs, two millions will be employed in the construction of the buildings, while the remaining six millions will be utilized for meeting annual expenses. Considering that a patient in the great hospitals necessitates an average expense of three and half francs per day, the Assistance calculates that in this hospital, in which the expenses will naturally be higher in proportion, each patient will cost about four and a half francs. As the six millions will be invested in state rents at three per cent., about one hundred and fifty persons can be taken care of at the Boucicault Hospital. The establishment will therefore be fitted up so as to contain one hundred and fifty beds, divided among the various services as follows: Medicine, sixty-four; Surgery, forty-eight; Maternity, twenty-four; doubtful, eight; beds reserved for the employés of the Bon Marché, six.

With the interest from the capital which will accrue during the two years which will in all probability be required for the erection of the buildings, etc., the Assistance Publique intends forming a reserve fund for the purpose of meeting the expense for the maintenance of the buildings.



*ETIOLOGY OF SPECIFIC DISEASE.<sup>1</sup>*

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IF, in the present paper, I take issue with any of its readers in regard to recent or novel theories relating to the proximate causes of our most important diseases, they may be assured that it has been done with all sincerity, and with the kindest feelings for those with whom I may differ. The writer does not wish to be considered as actuated by a spirit of obstinacy, or unreasonable scepticism. Indeed, it is so much easier to accept the dictum of others, or to shift the responsibility of our views onto those who set themselves up as authority, than to formulate the lessons of our own observation and experience, so much more convenient to accept the thought of others, than to think for ourselves that natural indolence protests against the sacrifice. In medicine, as in all other pursuits of life, we are more inclined simply to acquiesce than to contradict, and usually there is so little encouragement to do otherwise that we rarely wish to intrude our own opinion, but infinitely prefer that others may take the lead and we will follow, however fallacious and misleading such guidance may prove. Hence, it may be said to-day, as in the past, the greatest bane to medical progress is slavery to so-called authorities, and that one of the greatest hinderances to the acquisition of real knowledge is a blind reverence for great names.

Asking your pardon for these introductory and somewhat irrelevant remarks we will now call your attention to the subject of our paper, namely, The Etiology of Specific Disease. By specific diseases is meant certain maladies possessing distinct characteristics, and which are not only engendered by special causes, but are supposed to be incapable of development without the application of a so-called specific cause for each disease respectively. Such, at least, is a strict definition of the phrase "specific" as warranted by the phenomena of infectious and inoculable maladies. According to our text-books there are one thousand one hundred and forty-six diseases which affect mankind, and require the study and attention of the physician, but from this extensive nosological list, less than twenty-five diseases are to be reckoned as belonging to the class under consideration. Yet these are known to cause nearly two-thirds of our total mortality. Medical history informs us that many of the pestilential maladies which scourged the world in past ages belong to this class and far exceeds the mortality of any which now prevail. Indeed, so great was the special increment of their spreading power and malignity that, as *Niebuhr* has shown, they not only decimated fleets and armies, but influenced the fate of cities and empires.

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<sup>1</sup> Read before the Section of the Practice of Medicine of the American Medical Association at Detroit, June 7, 1892.

On the great plains of plague-stricken Asia, centuries before the Christian era, the query, "Shall such ills come by chance?" was then answered,—

" Like the sly snake they come  
That stings unseen ; like the striped murderer  
Who waits to spring from the Karunda bush,  
Hiding beside the jungle path ; or like  
The lightning striking these and sparing those,  
As chance may send."

—*Light of Asia.*

Shall the intelligent physician of to day meet this problem with no more rational interpretation than the ancient Buddhists in the earliest dawn of the world's history? Has the acquisition of long experience or the accumulated knowledge of the past thrown no light upon the cause and prevention of the maladies under consideration? In answer to this it may be said that the proximate cause of "specific" disease is now, as it has ever been, one of the most puzzling questions with which the human mind has had to grapple. It cannot yet be said that we have positive knowledge as to the specific poison, if we may so call it, which produces scarlatina, diphtheria, yellow fever, or cholera. The chemist cannot detect in the atmosphere the cause of those infectious diseases which spread only through this medium, or chiefly in this way, and to assert that he can with certainty detect any peculiar substance in the blood of the most pestilential malady, that is its positive etiological factor would be a statement in advance of the facts of exact science. Neither by the microscope, nor by the minutest chemical analysis can we distinguish the pus globule of small-pox or of syphilis from the most laudable pus of the surgeon. Nor have the most delicate tests as yet shown anything especially distinctive in the saliva of a rabid animal by which a specific disease of this class is communicated so certainly and positively by direct contact. The *agens morbi* of these diseases in our present state of knowledge is still an unsettled problem. But, since it has been truly said that the "curse causeless shall not come," some explanation of the etiology of our specific diseases, like Banquo's ghost, will not down; hence modern physiological, pathological, microscopic, and chemical research has led to the presentation of several novel and plausible theories to account for the proximate and specific factors which give rise to the development of the diseases known to be of an infectious or contagious character. Before their consideration, however, it may be said that it seems impossible to explain the development of any specific disease either *exopathic* or *endopathic* unless there be a recognition of certain predisposing causes of such maladies. We refer to pre-natal, conditional, and functional influences. There can be no reasonable doubt that some of the so-called specific diseases owe their origin mainly to a hereditary transmission of a proclivity to such disorder. This is notably true of tuberculosis, or it may be supposed that the inheritance lies in the tissues or tissue elements predisposing to certain diseases in certain



families. In the spreading of epidemics, contagious and personal susceptibility may be factors in a partly *conditional* sense. Influences which the old authors called "atmospheric," the various direct and indirect influences which relate to the normal succession, and occasional abnormality of seasons in respect to the isolation of our planet and of the temperature and humidity of air and earth are perhaps generally too vaguely regarded as elements of interest in the present question, but are possibly factors which no one who tries to solve these problems should omit from scientific consideration. Again, failure in the function of the lungs, the liver, the intestinal glands, the kidneys and the skin to eliminate the *waste products* of the system must be regarded by the physiologist as one of the most potent predisposing factors in the production of every form of zymotic disease. Science is more and more teaching us that the "survival of the fittest" is applicable to specific disease, and that the victory will be on the side of the attacked in direct proportion to the normal condition of all the bodily functions, and that the factors mentioned not only favor the development and intensity of such diseases, but that without such influence their establishment would often be impossible.

The theories of the proximate and specific cause of specific diseases may now be noted in the order of their popularity, but inversely as we believe with respect to their true etiological import. We refer to the *bacterian* theory, the *bioplast* theory, the *chemico-physical* theory, the *nervo-glandular* theory, and the theory of *perverted vital force*. The first hypothesis attributes specific diseases to the agency of microbes or minute living objects. By most authorities these are all classed in the vegetable kingdom, and might be termed microphytes of the fungous order. By some they are denominated parasites. They are supposed to operate by producing changes in the structures affected,—the blood, the cutaneous and mucous membranes, the cellular tissue, and glandular organs of a destructive character, deranging their functions, disturbing the processes of nutrition, of circulation, of calorification and secretion. Fever, loss of appetite, emaciation, prostration of the muscular and nervous forces being the usual results. Their mode of action suggested by the belief that they are living objects, is that by enormous multiplication they may act mechanically through their bulk, obstructing the capillary circulation, and by pressure on solid tissues cause their gradual destruction by robbing the blood of the pabulum requisite for growth of the microphytes, thus effecting emaciation by spoliation, and developing fever by conversion of molecular motion into heat, and deranging secretion by mechanical intrusion in the glandular structure; also engendering neurosal affections by similar action on nerve structure.

The discovery of the dependence of alcoholic fermentation upon the presence of the yeast plant (*saccharomyces cerevisæ*), and the general resemblance between the symptoms of contagious maladies and the processes observed in fermentation led to the use of the terms *zymosis* to express the action, and of *zymotic* to express the character, of all those diseases

which microbes in general are supposed to give rise to. But all such views must for the present be largely speculative. There are many points of difficulty requiring to be more fully illuminated by careful observation before the bacterian theory becomes an established doctrine in etiology. Many of these difficulties have been well formulated by Prof. Hartshorn, of Philadelphia, and may be expressed in part, as follows:

1. Throughout all the investigations which have been made, or likely to be conducted, there remains the extreme difficulty, if not impossibility, of total separation between the microbes themselves and the matter of the vehicle in which they exist, such as blood virus, vitiated secretions, artificial culture material, or whatever it may be. All the effects ascribed to the bacteria, except their proliferation and mechanical intrusion, may, with equal propriety, be attributed to the toxic action of a portion, however minute, of the soil in which they have lived, whose modifications must be coincident with those which they undergo.

2. The absence of the characters belonging to definite organisms in the easily studied virus of small-pox and vaccinia is presumptive evidence against the probability of such organisms being essential to the causation of other enthetic diseases.

3. Bacteria are rarely seen in the incipient stages of disease, but after the blood has become impoverished, the secretions depraved, or morbid products are undergoing decomposition they are found most abundant, and are found most numerous in materials of a septic or infectious character after their period of toxic intensity has passed by.

4. Bacteria have been, however, sometimes abundantly discovered in healthy bodies upon the various mucous membranes, in the blood, and it is said in countless number in fecal discharges without any specific disease following.

5. Suppuration may be produced without the presence of minute organisms of any kind. Bacteria have been found under Lister's antiseptic dressings without suppuration following. Pathological investigators (Paul Bert and Rosenberger) have destroyed all the microbes in a septic fluid, and yet found it to retain its poisonous quality. Various elaborate investigations have proved that fatal septic poisoning can be produced in animals by the products of decomposition without the presence of living organisms, and experiments have shown that normal blood, when deprived of oxygen, in the absence of micro-organisms, may acquire *septic* properties, and also that septicæmia may be induced by the injection of free fibrin ferment and other substances into the blood in the absence of such minute organisms. The same condition has also been produced by the subcutaneous injection of filtered saliva containing no microbes.

6. While Klebs and Koch maintain the definite *specificity* of each minute microphytic organisms, on the contrary, Billroth, Burden Sanderson, and others assert their mutual convertibility according to the influences of environment, and Pasteur, Wood, and Formad report experiments making it



appear that modification by culture is possible, converting an innocent into a malignant parasitic organism, or a death-producing microbe into one capable only of causing a transitory and not dangerous local affection which, nevertheless, secures to the animal thus treated immunity when subsequently exposed to the deadly infection. But in none of these cases is there reported any morphological change, whatever, in the bacilli or micrococci experimented with; their capacity of reproduction through several generations being retained.

7. Other points of objection to the bacterian causation of disease relate to their specificity. While it may be conceded that like produces like is a rule of nature, and that different forms of bacteria may reproduce themselves, it does not necessarily follow that they can reproduce the disease which they may accompany. That disease may be propagated like plants and animals by means of a peculiar form of these organisms would require the recognition of disease as an entity and not a physiological perturbation, but the analogy is so absurd and the assumption so unwarranted as to need no argument for its refutation. While this theory requires the belief that each specific disease is produced by a certain variety of these organisms and no other, it fails to explain *how* and *why* they are causative of a special disease or of immunity against subsequent attacks. If they act as a specific cause of a specific disease by their enormous multiplication in a mechanical way, through their bulk obstructing capillary circulation, or by pressure on solid tissues causing gradual destruction (as in tuberculosis), this is a property that is not confined to any particular form of such organisms, but is common to all of them. Then why should one particular variety engender one disease and not another, and why should they not continue to produce identical results as often as they gain entrance into the system.

It is held by Prof. Jaccoud and others that the bacteria of infection are indistinguishable from harmless ones except by their effects, and that as the liquids inhabited by them are frequently infectious, they are therefore merely a medium through which contagion acts. In some instances becoming so infected themselves as to transmit the property through several successive generations. Again, some observers attribute the symptoms of many acute infectious disorders to rapid development of poisons similar to vegetable alkaloids by bacteria in remoleculizing the normal fluids. Others hold that such animal alkaloids are constantly produced in the living body by albuminoid decomposition without such agency, and that the general function of minute cryptogamic organisms, when present, is of a beneficial or conservative nature in reappropriating the product of organic decay.

Analogy in nature renders this scavenger theory more probable *per se* than that which holds them to be destructive parasites or poison-producers in the bodies which they may inhabit.

We may next briefly consider the vital germ theory of which Lionel Beale is the chief exponent. Dr. Beale, than whom no greater micrologist has ever lived, uses the term *bioplasm* to designate the physical basis of life

and growth. This consists, according to his views, of separate particles of less than  $\frac{1}{1000}$  of an inch in diameter, originating in the blood, and designed for the nourishment and growth of all the tissues of the body. They are described as soft, without color or structure, and enclosed in a colorless capsule, through which liquid pabulum passes for their growth. New bioplasts are formed by division of mature ones, and the new ones continue to grow by imbibition until they divide or contribute to the formation of solid tissues. *Microphytes*, with an average diameter of  $\frac{1}{9000}$  of an inch, are considered by him as the lowest form of bioplasm, existing in all the fluid and solid tissues of both plants and animals, as well as in all kinds of mineral substances, and under all meteorological conditions (though dormant under some conditions of temperature and desiccation). Being omnipresent, and, as he believes, indistinguishable from each other by any precise physical characteristics, he denies their relation to disease of any kind. Contagious diseases are attributed by him to degraded or perverted bioplasm descended from original healthy bioplasts. These constitute what he terms "disease germs," which have the property of self-multiplication like healthy bioplasts, both within the diseased body and in any healthy susceptible body to which they may gain admission. These contagious bioplasts are extremely minute, having a diameter less than  $\frac{1}{100,000}$  of an inch, and though possessing "specific" characteristics for every disease, one cannot be distinguished from another, either by the microscope or by chemical analysis; neither can the healthy bioplast be distinguished from the diseased by any tests except its effects. The disease germs referred to in this connection become noxious only after entering the blood and then passing into the solid tissues and secretions. According to this investigator, their multiplication in the body always elevates the temperature, and this may continue after the death of the victim, and that fever is due to this process, and not to oxidation of tissues. Death being the result of change in the composition of the blood and derangement of capillary circulation. Beale's theory of migrating or transplanted bioplasts in the writer's opinion contains an element of truth, but has thus far received very little support besides that of its distinguished author.

On the supposition that *disease germs* are only abnormalities or deviations from healthy bioplasts which may be detached from one body and planted while yet retaining vitality upon another, and which may there undergo changes more or less morbid and destructive to the individual by whom they have been received, we certainly have a more plausible explanation of the transmission of contagious disease than that which is claimed by bacteriologists.

We will now call attention to the *chemico-physical* theory of Liebig, which embraces the doctrine that the *materia morborum* may consist merely of inorganic elements or compounds which, by entering the body and acting as chemical poisons, engender specific diseases, and which affirms that the action of a *virus* is not essential to the development of a zymosis, or fer-



mentation in the human economy. This hypothesis has been more clearly expressed in the phraseology of the late Dr. Snow, of London, as the theory of *continuous molecular change*. Chemists have defined this change to be decomposition by contact, or the action of presence. An illustration of this law is the power which small quantities of certain substances possess of causing unlimited quantities to pass into the same state. The phenomena of crystallization, the molecular motion that takes place in the operation of skin grafting, the diffusion of heat from molecule to molecule, or the extension of a flame from a burning body to combustible material within its reach may be cited as physical instances, and analogies of the operation of this law. Hence, if a decomposing organic molecule is introduced into the human body, by this law of catalysis or induction it imparts its motion to other molecules with which it may come in contact.

The processes in fermentation, putrefaction, septicæmia, and the multiplication of small-pox, or syphilitic contagion from the smallest inoculation in the human body, are accounted for in a similar manner. Against the necessity of the action of minute living organisms to produce these morbid processes, the advocates of this theory urge that the above-named changes, and many others like them, are produced in the absence of such organism by chemical agents formed in the body, such as *leucomaines* and *ptomaines*, those physiological and putrefactive alkaloids recently investigated by Vaughan and others, and that inorganic substances may develop such changes similar to the action of sulphuric acid when it changes starch into sugar. In support of this doctrine it may be asserted that the bacterian theory that every particle of contagious matter is (at one time at least) a living organism, and that only such living organisms reproduce their kind and the diseases which they accompany is one that loses weight as an argument in view of the natural history of small-pox and analogous diseases.

*The Nervo-Glandular Theory* of the origin of specific disease has been plausibly urged by Dr. B. W. Richardson, of England, and is apparently an outgrowth of his studies of the above doctrine of Liebig concerning fermentation and its relation to nitrogenous material. He was convinced by experiments that zymotic disease could be communicated from one animal to another by inoculation of various secretions. He also succeeded in producing from such fluids alkaloidal substances of crystalline structure. Inoculations of these in solutions were followed by the same specific diseases as had yielded the alkaloids. (*Leucomaines?* or *ptomaines?*) Hence he concluded that any animal secretion might be made to yield a contagious principle to which he gave the name of "septine," and the maladies thus engendered were designated by him as "septinous." The true *contagia*, in his belief, are therefore all of glandular origin, and the venom of serpents was suggested as a type of their source and action, the effect depending not on a multiplication of germs, but a catalytic influence, the agent changing other substances without undergoing change itself, and that the poison, therefore, is reproduced only in the infected and diseased body through its

own secreting organs. He believes, also, that ordinary secretions may change character, and become poisonous without previous infection. For example, the exudation of ordinary peritonitis may give rise to puerperal fever, and typhus fever may be produced in overcrowded apartments by absorption of animal exhalation, and in this way contagia of various kinds may constantly arise *de novo*. In furtherance of his theory, Dr. Richardson emphasizes the fact that the number of separate communicable maladies has a close relation to the number and character of the secretions. As examples, hydrophobia is derived from the saliva of rabid animals; glanders from nasal mucus; enteric fever is traced to the intestinal mucous glands; diphtheria to the mucous glands of the throat, and scarlet fever to the secretion of the lymphatic glands, but admits that in some instances the blood-corpuscles become the seat of the catalytic change. As Richardson maintains that communicable diseases may arise without intervention of contagious matter, he supposes that the virus may arise through previous impressions upon glandular organs, and refers the origin of such cases to fear or anger, or other emotional disturbance when no mode of communication can be discovered. In favor of this hypothesis much might be said.

It is now known that some of the most remarkable pathological effects may be artificially induced, either by drugs, the precisely localized and measured action of heat and cold, or by other agencies acting upon the nerve-centres in the brain and spinal cord. And since it is admitted that the brain is not only the instrument of the mind, but that it presides over and controls the functions of all the other organs, its own disorders therefrom can hardly fail to affect them. Strong mental emotion may not only suspend or pervert particular functions, but is even capable of destroying life by arresting the action of the heart. Sudden mental worry may excite dangerous interference with digestion or start an abnormal cardiac rhythm. Mental shock can check or increase the action of the kidneys, and in fact affect all the secreting or excreting organs of the body. The influence of continued mental anxiety and the pernicious effects of habitual grief upon the nutritive functions are plainly marked. Under its corroding blight the skin loses its freshness and grows dry and yellowish; owing to derangement of the liver the bowels become confined, and their habitual constipation is apt to be followed by absorption of fermentative and putrefactive gases and other noxious materials, giving rise to fecal toxæmia with all its consequences, and thus not only by reflex influence of local irritation, but direct influence through the blood, the vicious circle is completed by the further induction of disease of the brain and nervous system. Anger often brings on a convulsive attack, and insanity frequently follows close upon exaggerated mental effort, and especially upon violent mental emotion, whether of terror, grief, or joy. The principle of moral contagion cannot be denied. The mind is affected by imitative influences. Thus chorea is excited in some individuals by watching choreic movements in others, and a single hysterical patient may arouse in others symptoms almost identical with her



own, while the direct influence of the mental state upon existing disease and in governing the susceptibility to others or favoring their development is of the most potent character. For evidence of this influence in the genesis of specific disease the reader is referred to that most interesting book of Dr. Tuke's, entitled, "Influence of Mind Upon the Body." Apropos to this subject are also the recent remarks of Sir Joseph Fayrer, at the sanitary congress at Brighton, England, with regard to the expected invasion of the country by cholera. After denouncing quarantine and cordons as antiquated, worn out, and obsolete devices, he urged that the true way to protect ourselves from this disease is to see that our homes are clean, that the water we drink is pure, and the food we eat wholesome, and above all else *to keep our minds free from panic*. A state of panic implies a disorganized vitality, and its influence in aiding the development of the class of diseases to which cholera belongs cannot be doubted.

#### GENERAL CONCLUSIONS.

*Theory of Perverted Vital Force.*—We must be somewhat brief in presenting the following conclusions as to the etiology of specific disease, as our views have been already emphasized as occasion occurred during our argument. It now remains for us to deduce several general facts which may serve to harmonize all of the theories presented, conceding to each its due importance, and out of all endeavor to construct one of our own which may serve to show how and why communicable diseases are made *specific*. The advocates of the bacterian, the bioplastic, the chemical and of every other theory of zymotic disease unanimously concede the fact that the presence of nitrogenous matter in a decomposing or readily decomposable state affords the best possible *pabulum*, either for the development of microphytes, the infection of bioplastic elements, the elaboration of animal alkaloids, or for the action of ferments. Hence a *common condition* which all those agencies require for their action in the production of specific disease is the presence of an excess of such pabulum in the blood of the individual attacked. Again, a careful study of the foregoing investigation as to the cause of the diseases under consideration certainly teaches that we must be on our guard against ascribing a specific etiological influence to the various forms of vegetable micro-organism. For in certain cases these may have been in the first place non-existent, as when such a disease has been "autogenetic," and in no sense a derivative of antecedent disease of the same kind. This caution is especially applicable in regard to such an affection as erysipelas, which, although contagious, is also, on very good grounds, judged to be generable, especially during certain states of lowered health, induced by renal disease and some other visceral affections. Though not so positively known, it is by many deemed probable that a similar caution may be necessary in regard to more general contagious affections, such as diphtheria, typhoid and typhus fevers and cholera, which, though certainly infectious, may also be autogenetic. Among these diseases we might still mention sev-

eral others which, although their ordinary or normal mode of spreading is by contagion, yet beyond reasonable doubt do sometimes arise spontaneously. We refer to such maladies as scarlatina and yellow fever, gonorrhœa, rabies, and glanders. The two last, in fact, being only of spontaneous origin in the lower animals, from which they are communicated to man.

It would appear from the conclusions of Bastain and others that, in those complex, prolonged, and continuous morbid processes constituting the phenomena typical of some particular infectious malady, at some stage of this complicated chain of processes, and somewhere (that is, in some organ or tissue, or in the blood), certain organisms may arise *de novo* and are not to be regarded as direct descendants of pre-existent organisms, any more than we would regard the pus-corpuscles met with in a case of purulent ophthalmia or gonorrhœa as direct lineal descendants of those which may have taken part in occasioning one or the other of such diseases. But admitting that the doctrine of *heterogenesis* is established and that of *arche-biosis* or spontaneous generation is disproved by the experiment of Tyndall, it is by no means clear that the assumed mode of operation of microphytes in the causation of disease is the true one, or that their influence in the transmission of disease is not simply that of carriers of contagion the same as the non-vitalized chemical compounds of Liebig, the leucomaines, and ptomaines of Vaughan, or the cast-off and altered glandular secretions and tissue elements of Richardson or Beale. It is not yet possible to say with regard to metabolic contagion what is the *essential constitution* of contagious matter, or what is the intimate nature of the transforming power which the particle of such matter exercises on the particles which it infects. Nor are we able, by actual demonstration, to say that contagion is a *material substance*. We know that the ancient philosophers in investigating the nature of heat regarded it at first as a kind of subtile matter which insinuated itself into the substance of bodies and resided there with greater or less manifestation of its presence, but heat is now regarded and proved by scientific observers to be, not a material substance, but simply a *condition of matter*—a phase of force, or molecular motion—and from the nature of its action *contagion* like the *force calorific* is, in the writer's opinion, a mere condition of matter and not a *material substance*.

As regards the question of the form of force which may explain the transforming power of the contagion of specific disease, science is still ignorant. Yet expert chemists express clearly enough the conviction that there exists a certain great unit of force in nature which lies beyond their power of analysis, measurement, or even of definite nomenclature. But in that most interesting, yet most difficult and hitherto almost uninvestigated branch of chemical dynamics, we are supposed to have our nearest clew to the scientific problems connected with the specific etiology of disease. Any theory which tends to explain the *rationale* of the processes under consideration must recognize the existence but perverted operation of the so-called vital forces. The theory which we present assumes the identity of the physi-



cal and the vital forces. The physical forces embrace magnetism, chemical affinity, heat, electricity, and motion. The vital forces are assimilation, combustion, animal heat, nerve force, and muscular contractility. All scientists now concede the correlation of the physical forces, that they are all convertible the one into the other, and that force, like matter, in any form can neither be created nor destroyed, and, as presented to us in the universe, they are both indestructible and inseparable, perpetually existing, and unchanging in quality, yet ever changing in form. The intimate nature of force, however, is the greatest mystery of all unrevealed phenomena, visible only in its effects as manifested to our senses, it becomes at once an unknown and unknowable power, transcending all human knowledge and conception. We can only judge of its presence, therefore, by the peculiarity of its action, and the effects which it produces. If we accept the teaching of modern science, all matter is the vehicle of change, motion the result of change, and *force* the cause of change. Life, as we understand it, depends upon the presence of a material substance operated upon by force, resulting in movement, and the harmonious interactions of these conditions when applied to the animal body not only constitute life, but health, while its derangement as surely eventuates in disease and death. According to the demonstrations and conclusions of modern investigators of physical science, the *vis viva*, or life force, is simply the combined influences of the physical forces which are constantly changing in form during the various vital processes, the supply and action of the same being maintained by the food we eat, the fluids we drink, and the air we breathe. Let us suppose, for illustration, that the nutrient fluid charged with oxygen is placed in an *electro-positive* condition, at the same time the tissues are in an *electro-negative*, or magnetic condition, by which assimilation or chemical affinity is induced; this involves oxidation, combustion, and molecular motion. Molecular motion is converted into (animal) heat, and heat is converted into (animal) electricity, or nerve force, and nerve force induces muscular contraction or mechanical motion, which in turn serves to assist and perpetuate the operation of the other manifestations of force, in that it maintains the respiratory function, contracts the heart and arteries, propels the blood to all parts of the system, and thus supply tissue-waste and equalize temperature, as well as control the various secretory and excretory functions of the body.

Such are the different manifestations of the so-called "vital forces," the harmonious and normal operation of which constitute life and health, but when perverted will not only occasion disease and disorganization, but death either local or general, as conditions may determine. For example, if the blood from any cause becomes contaminated or deficient in oxygen, the forces governing nutrition, such as assimilation and combustion, will be perverted in their operation, waste materials, or *materia morbi*, will be developed, which may eventuate in morbid effects, either as irritation of nerve centres governing heat-production, or local irritation exciting inflammation of various tissues or organs, as well as malnutrition and disorganization of

various degrees and variety according to the extent of toxæmia, and the functional activity of those organs provided for elimination. Or the *materia morbi* thus accumulated may remain in a latent condition until equilibration is commenced by increased oxygenation, and this may augment the amount of animal heat within the body, causing fever, which may in its turn induce pathological lesions, varying in character with its intensity, ten degrees of which mark the difference between life and death. Although force can only manifest itself by molecular motion, yet it may exist in two general forms known as potential energy and actual energy. Force stored up in certain conditions of matter, as in the tension of the particles of an explosive compound, such as nitro-glycerin, or in combustible materials as wood, coal, and the food of animals, is known as potential energy,—that is, power capable of being liberated for the production of effects. But when the nitro-glycerin explodes, the fuel is burned, or the food is oxidized in the animal body, the force they contain is given out in the form of effects produced, and the potential energy becomes actual energy, or in animal bodies, living force. Such is the nature of un-oxygenized material in the blood constituting an *agens morbi*, in that it represents potential energy, becoming actual energy, and capable of producing morbid effects when subjected to zymotic action.

Force acting upon different forms of material substance will manifest itself in different ways, as chemical affinity, combustion, electricity, etc. Also force in its different forms acting upon the same material substance may give to a multiplicity of effects, as quantity and local conditions may determine. But force of any particular form, whether physical or vital, operating in a certain direction, producing certain results, *tends to continue its action in that direction, and the production of the same results as long as conditions favorable to its action obtain.* Thus the molecular motion imparted to a conducting wire from a galvanic battery may continue for thousands of miles. A spark of fire may destroy a city, and so the smallest quantity of chemical or perverted vital force arising from the blood in a state of zymoses, and conveyed by means of its own elements, may set up the same morbid action in other individuals whenever their blood is of a suitable zymotic condition, and it is the operation of this law that gives us the *rationale of contagion.* But as we find in the physical forces, so in the vital forces; as in the great laboratory of nature, so in the individual organisms that action is met by counteraction, and that force, however manifest, sooner or later tends to equilibration. For this reason galvanic batteries become exhausted, fires must be fed with fuel, and zymosis ceases, and disease ends in the affected individual, and in communities when the material suitable for its action has been extinguished. Strictly speaking, therefore, *contagion is a phase of perverted vital force*, and this morbid influence does not imply the agency of micro-organism any more than that of any other medium, vital or otherwise, which may serve to convey its action. The essence of contagion is not a material substance, nor does it necessarily



require a definite agency through which it must operate, but is simply a form of force as imponderable in its nature as heat, light, or electricity. Specific only so far as it naturally tends to operate in the same direction upon the blood of another individual when it contains certain constituents of identical character with those upon which it has been operating in the blood of the infecting individual, which is likely to be the case when individuals and communities are alike subjected to the same general and special predisposing causes of disease.

In conclusion, it may be affirmed and reiterated that the agency through which contagion acts is not limited to any particular form of microphyte, nor to the bioplasts of Beale, or to the waste products incident to tissue metamorphosis, for all may serve as carriers of a perverted vital force. While the types and varieties of infectious disease may be determined by the impressions made upon the nervous system, but influenced by the condition of the individual with reference to his powers of constitution, age, susceptibility, weakened condition of certain organs or tissues from previous disease or tolerance from like causes. And where the initial factor is due to accumulation of "waste products," then also by the character and degree of the defective excretion, and the route or channel by which the vital forces attempt its elimination. And finally, since any of the elements hitherto described as factors of contagion are infected through defective excretion, it necessarily follows that the character of an infectious or contagious disease depends upon the variety or nature of that glandular excretion which is most defective, and as these infected elements are most prone to elimination through those glands whose defective function has produced the blood-contamination, we are thus afforded the *rationale* of the glandular involvement of specific disease. And if any such morbid elements were still under the dominance of the natural laws of *elective attraction* which appropriates from the blood certain elements to certain tissues or parts of the body, or that normal *repellent force* peculiar to certain excretory glands, their *deposition* in these localities would be secured or their ultimate *elimination* (if the patient survived) through those glands and parts of the body identical with those from which they have been derived would be effected. And thus again would be stamped upon the disease its "specific" character.

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### REMARKS ON SEA-SICKNESS.

BY LAURENCE TURNBULL, M.D.,

Philadelphia.

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THE number of remedies suggested for this most disagreeable disorder is legion; every one has his favorite, which he does not hesitate to press upon the neophyte as a sure cure. The editor of this journal most kindly advised the writer and party to use from ten to fifteen drops of a saturated

solution of bromide of sodium several times a day for a week before starting on the voyage. This was done with a fair degree of consistency, although now and then the solution was neglected. The result was very good in two out of three individual cases; one was during the first voyage, a lady who was apt to be sick on a short voyage, as to Boston or Newport, and the other case on every voyage.

Our voyage was more or less rough, with a heavy sea and head-winds all the way across, and only now and then a day of pleasant weather. The third patient was very ill from the first day until the fifth, or next to the last. She was feeble from the "grippe," and we had tried every means to relieve the vomiting and most distressing retching by brandy, ginger-ale, effervescing waters, mustard, hot applications, etc., with no good results; at last it struck me that cocaine might have the desired effect, so I had prepared a ten-per-cent. solution of the hydrochlorate in camphor-water. Just after a severe attack of vomiting, which was accompanied with some blood, I dropped ten or twelve drops of this solution in a quarter-tumbler of water and gave about a tablespoonful, which dose was repeated twice, with the most happy result, relieving the distressing pain and vomiting after a hopeless use of other remedies, so that the patient was able to sleep and thus recruit her strength.

This *mal de mer* has a most distressing and depressing influence upon certain individuals, and we have known more than one death on ship-board from it. There are some individuals that never have a day of comfort or pleasure from the time they come on board until they touch terra firma. There is no doubt in my mind that the peculiar motion of the ship causes a disturbance of the molecules of the brain tissue, like the action of a swing; this continues for days together, and produces or induces a reflex action on the stomach, causing dizziness, faintness, nausea, and vomiting, with entire derangement of the digestive system. It is well, before coming on board, to take a blue pill, followed by a seidlitz powder, to keep on deck as much as possible or in a horizontal position, eating, with great moderation, of plain toast or hard biscuit with rare beef, mutton or chicken, avoiding all sweets except stewed prunes. For the prevalent cold damp winds each individual should be provided with soft fleecy shawls and light woollen coverings for the head. Another useful article is the hot-water bag. All so-called table-luxuries must be avoided, as they tend to disturb the stomach.

There is a funny side to sea-sickness, in that people are ashamed to be seen under its influence, and if taunted with having it act as if it were a disgrace. As has been well observed in that witty book, "Three Men in a Boat," "It was the pickles, you know. They were the most disagreeable pickles I ever tasted in a respectable boat. Did you have any?" I have discovered an excellent preventive against sea-sickness in balancing. Standing on the deck, as the ship heaves and pitches, you should move your body about, so as to keep it always straight. If the ship rises, you lean backward. This is all very well for an hour or two; but you can't balance yourself for a week. Having to succumb, do not fail to try cocaine.



# CLINICAL LECTURES.

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## SYMPATHETIC OPHTHALMIA.

CLINICAL LECTURE DELIVERED AT THE HÔTEL DIEU, PARIS.

BY PROFESSOR PANAS.

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GENTLEMEN,—Our patient is forty-three years of age, in good health, with no venereal antecedents. In fact, with no symptoms or history of any kind that would lead you to a correct diagnosis. Two years ago, in stooping to pick up the branch of a tree, he received a contusion of the right eye without any wound. The sight was lost at this time, but it gradually returned, and then was lost again. In June last he began to see floating objects before his left eye, and photophobia developed. The inflammation was slight, but the vision of the eye was in danger, as the visual field was found narrowed in a concentric direction, some ten to fifteen degrees. If you examine his right eye, the one that was first attacked, you will find that the pupil is large and widely dilated. The iris looks like a small ring, this paralysis must not be placed to the account of the amblyopia, for it is a true iridoplegia. And there is besides iridodonesis, which proves that the crystalline body is not in its right place; there is, in fact, a subdislocation of the crystalline lens, caused by the rupture of the capsule. At the base of the eye a glaucomatous excavation is seen, and all the vessels of the retina are pushed over to the nasal side. The tonus is only slightly raised. There can be no doubt that this excavation is caused by the compression and atrophy of the optic nerve. The eye shows no exudation or inflammation,—nothing at all, in fact, to indicate an inflammatory complication. The left eye, however, presents a trace of inflammation, as we find a deposit of pigment there. With the aid of the ophthalmoscope you can see the vitreous body, but through this foggy appearance you can perceive indistinctly the papilla and around it some discolored plaques on the choroid. From this we may conclude that a subacute inflammation of the neuro-epithelial coat of the retina and the iris exists. This, then, is a case of *sympathetic ophthalmia*, an affection whose evolution is as yet but poorly understood. It is, however, a very important condition, a knowledge of which is essential, not only to an ophthalmologist, but also to every doctor who may be called upon to treat a wounded person or give a medico-legal certificate.

Sympathetic ophthalmia occupied the attention of many ancient writers, but up to Mackenzie's times nothing of importance had been done. He supposed that the optic nerve and tracts were the means by which the inflammation was propagated to the other eye, and advised enucleation as the best means of treatment. Other authors concluded that the ciliary nerves were at fault. This belief they based on the clinical fact that all wounds of the eye having their seat in the ciliary nerves predisposed the person to sympathetic ophthalmia. While the wounds of other parts of the eye—the cornea, for instance—are very rarely followed by sympathetic ophthalmia, I have only once seen it follow an operation for cataract.

Another important fact is that the traumatism of the ciliary region will cause sympathetic ophthalmia, whether the wound be an open one or not, so that it is not correct to suppose that the infection which causes it must necessarily come from without. Our patient is a living proof that the pathogenic cause did not come from outside his eye. The commotion of the ciliary region with the paralysis of the iris and rupture of the zonule were not accompanied by any solution of continuity. The pathogenic part taken by the ciliary region has been attributed to the presence of a great number of sensory ciliary nerves, which give rise to reflex vaso-dilating action. This is the prevalent opinion of such writers as Rondeau and Reclus.

With Pasteur's discoveries, bacteriology aided in deciding the question, Leber and afterwards Deutschmann, guided by the ophthalmoscope and their anatomical studies, seemed to return to Mackenzie's theory, and stated that the inflammation was transmitted from one eye to the other by means of the optic nerve, from which they called it "*ophthalmia migratoria*;" to prove it, they injected into one eye of the rabbit a culture of the pyogenic microbe, and they claimed that the inflammation was propagated to the other eye by the optic tract. But these experiments have been done many times since, and the results are not at all sure, so that we must not accept this theory as proved. In the last congress at Heidelberg, Schmidt, Phlueger, Kulnet, Laquen, and others spoke against it. If we cannot accept this theory, we certainly cannot admit the advisability of an operation or attempts to prevent sympathetic ophthalmia by section of the optic nerve or resection combined with abrasion of the ciliary nerves and vessels.

We can add that this operation often results in a hæmatoma of the orbit, marked protrusion of the globe, and death by meningitis, and that this happens much more often than has been said or written. For these reasons I remain convinced that the best thing to do is to resort to enucleation as the most reliable means of preventing sympathetic ophthalmia. This operation done under antiseptic methods is the best treatment for such patients.

I do not mean that it is the only thing that can be done, but simply that such a surgical operation is not harmful in itself and it has given the best result as a preventive treatment against this trouble. But once you have



the sympathetic ophthalmia started you cannot hope to cure it by operation. The mercurial treatment must then be employed. This can be done by rubbing the ointment into the eye, or by hypodermic injections. I have reported a number of cases treated in this way. I must also mention in this connection the treatment proposed by Drs. Abadie and Darier, who make intra-ocular injections of a solution of one to one thousand of corrosive sublimate, combined with the use of the actual cautery; applications to the site of the wound with the thermo-cautery may also be employed. This method is still, however, under trial as to its merits. It may be good when the eye is not completely lost, and when the mercurial treatment has had no effect.

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### *PSEUDO-LEUCOCYTHÆMIA, WITH CONSOLIDATION OF ONE LUNG.*

CLINICAL LECTURE DELIVERED AT THE BUFFALO GENERAL HOSPITAL.

BY CHAS. G. STOCKTON, M.D.,

Professor of Medicine in the University of Buffalo.

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THIS is a case of what I regard as Hodgkin's disease, and, as the diagnosis is a very close one, I will ask you to examine the case carefully. This woman, thirty years of age, was supposed to have a general tuberculosis involving the lymphatic glands as well as the lungs, but this diagnosis, I think, we have disproved. One lung is undoubtedly solid, there is dulness on percussion over it, and there is no possibility of the dulness being due to fluid in the thoracic cavity instead of hepatized lung, for we can hear distinctly the air passing in and out of the bronchial tubes, and there is both bronchial breathing and bronchophony. I believe this condition of the lung is due to enlarged bronchial and mediastinal glands which have so pressed upon the veins, through which the blood returns from the lung as to give rise to carnification of the lung. This is a very unusual condition. I have had in my practice one other instance of it, in which the diagnosis was verified at the post-mortem.

You will notice this mass of glands under the chin extending as far as the angle of the jaw. This is not as marked as when she came here. There is a mass of glands in each axillary region, and also one in the left inguinal region, so large that it was supposed she had an ovarian tumor. Furthermore, I find that the spleen is enlarged to such an extent that it can be discovered by palpation. There is splenic dulness in the lateral line, extending below the border of the ribs and reaching to the fifth rib above. As I make pressure over the sternum you notice that the patient gives no expression of pain or tenderness.

There is present a marked degree of anæmia, as shown by examination of the blood; the number of red corpuscles in a cubic millimetre being three million five hundred thousand, while the white blood-corpuscles number twenty thousand. This shows, besides the diminution of the red, an increase of the white corpuscles not merely relative but absolute. Let me speak a little more definitely about what is meant by the terms absolute and relative increase of white blood-corpuscles. You will remember that in a cubic millimetre of normal blood we expect to find about ten thousand white corpuscles. Now, when there is a decrease in the number of the red, the ratio existing between the red and the white changes, and still we cannot say there is an absolute increase in the number of white corpuscles. But when we find in a cubic millimetre of blood twenty thousand or fifty thousand white corpuscles, no matter how many the red number, we are forced to admit that the white are in excess, not merely relatively but absolutely. This increase of white blood-corpuscles may in some extreme cases of leucocythæmia be so great that their number equals that of the red bodies. One cannot say, however, that, with such a moderate increase of the white blood-corpuscles as exists in the case before us, the case is one of leucocythæmia. In leucocythæmia there must be an immense increase of white corpuscles, which is the chief point of differentiation between leucocythæmia and Hodgkin's disease,—if, in fact, any difference actually exists. Cases conforming in all respects to the description of Hodgkin's disease save that we find the same blood-changes witnessed in true leucocythæmia are found, and, on the other hand, we find cases of leucocythæmia associated with such marked enlargement of the lymphatics and spleen and with such strong evidences of disease of bone-marrow that we are unable to say that the disease is not pseudo-leucocythæmia till the count of the blood-corpuscles is taken into consideration. Such cases justify the remark which I made, questioning the propriety of making a pathological distinction between typical leucocythæmia and Hodgkin's disease. To make this matter somewhat more clear clinically, it is best to regard leucocythæmia as a disease particularly of the blood in which either with or without marked decrease of the red bodies there is a vast increase of the white, permanent and not merely temporary as occurs in a number of acute maladies. When this condition is present there may or may not be enlarged lymphatic glands, enlarged spleen and diseased bone-marrow, any one or all present in the same case. When there is a temporary increase of white blood-corpuscles, be it great or small, or when there is a moderate increase which is persistent, it is proper to term the condition leucocytosis. On the other hand, we must view Hodgkin's disease in the light of an affection of the lymphatic glands associated with large spleen and diseased bone-marrow either with or without marked leucocytosis, which may extend sometimes to that degree, which may be called leucocythæmia. You will now understand what is meant by the expressions implying that there may be actually no line of demarcation between the two affections.



Oddly enough, I am seeing some improvement in this woman under oxygen treatment, which I have used several times in leucocythæmia. My idea in using it here was because this disease closely approaches leucocythæmia. The patient is beginning to eat better, her glands are certainly smaller, and she has had nothing to cause this improvement further than inhalations of oxygen. What the outcome will be I do not know. Temporary improvement in Hodgkin's disease is not infrequently observed. A recession of the symptoms may be produced for a time by treatment or such an occurrence may come about spontaneously so far as we are able to judge. Some cases, which have been carefully described, have apparently gone on to recovery, not so much from treatment as from change in the conditions of life. Whether these cases are truly Hodgkin's disease or whether they are some other affection I am not prepared to state from my personal observation. I think some of you will remember a case which I presented at the clinic last winter, which showed a temporary improvement after the hypodermic injection of arsenic, but which ultimately died from asphyxia, the result of the pressure of enlarged bronchial and cervical glands.

The further history of this case is to the effect that the examination of the blood showed a leucocytosis. The examination of the sputum, which was scant, was negative as regards the bacilli of tuberculosis. The woman steadily improved under the oxygen treatment, was able to walk about the room, and eventually recovered sufficiently to return to her home. The treatment was there continued, but after maintaining about the same condition as when she left the hospital for a period of a month she unexpectedly died. No post-mortem examination could be obtained.

In furtherance of the diagnosis of Hodgkin's disease, it should be said that the patient did not show as much emaciation as one would expect in tubercular disease; there was little evidence that could be adduced pointing towards phthisis save the fact of consolidation of one lung. The other lung was apparently perfectly sound. There was at no time marked febrile disturbance. It is unfortunate that the diagnosis could not have been verified by post-mortem study of the bronchial and mediastinal glands, but from the stand-point of clinical evidence, it seems to me that the conclusion reached was most natural and correct.

*EXTRA-UTERINE (TUBAL) PREGNANCY: ITS TREATMENT  
BY ELECTRICITY.*

CLINICAL LECTURE.

BY A. D. ROCKWELL, A.M., M.D.,

Formerly Professor of Electro-Therapeutics at the New York Post-Graduate Medical School and Hospital  
and Electro-Therapeutist to the Woman's Hospital in the State of New York.

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GENTLEMEN,—In the year 1872, Dr. J. G. Allen, of this country, reported for the first time a case of extra-uterine pregnancy, for the relief of which electricity was successfully used.

No further attempt was made at that time to test the method in other cases, so that the remembrance of it quite vanished from the professional mind, and in 1878, when the second case was successfully treated in the same way, none of the parties directly interested had ever heard of the first-named case, and supposed they had inaugurated a method of procedure in such conditions entirely new and original.

This interesting case was at the time put on record, which, briefly stated, is as follows:

The patient was a young woman about twenty-one years of age, under the care of Dr. Charles McBurney, of New York, who detected what he believed to be a tubal pregnancy that had advanced to about the second month.

Drs. T. Addis Emmet and T. Gaillard Thomas, being called in consultation, very positively confirmed the diagnosis, and recommended an immediate operation. Subsequently, however, Dr. Thomas suggested that my opinion be asked as to the feasibility of using electricity for the destruction of the foetal life, and whether this could be accomplished without injury to the mother. I replied that the foetus could undoubtedly be destroyed, and in all probability without injury to the mother, and expressed my willingness to employ the agent for this purpose. It proved to be a most extraordinary but entirely successful case, and since then the patient has been delivered of a living, healthy child. The announcement of its successful issue excited a deep interest everywhere, both at home and abroad, and the efficiency of the treatment has been confirmed by many others. I myself have treated twenty similar cases in the practice of other physicians up to this date, and am in a position to speak very confidently of the use of electricity in suitable cases of extra-uterine pregnancy, as certain in its result, painless in its use, and devoid of unpleasant sequelæ.

To Dr. Thomas, therefore, belongs the real credit of this operation, for it was he that revived it, and did more than any other to establish it in the confidence of the profession. The beauty of the use of electricity in the

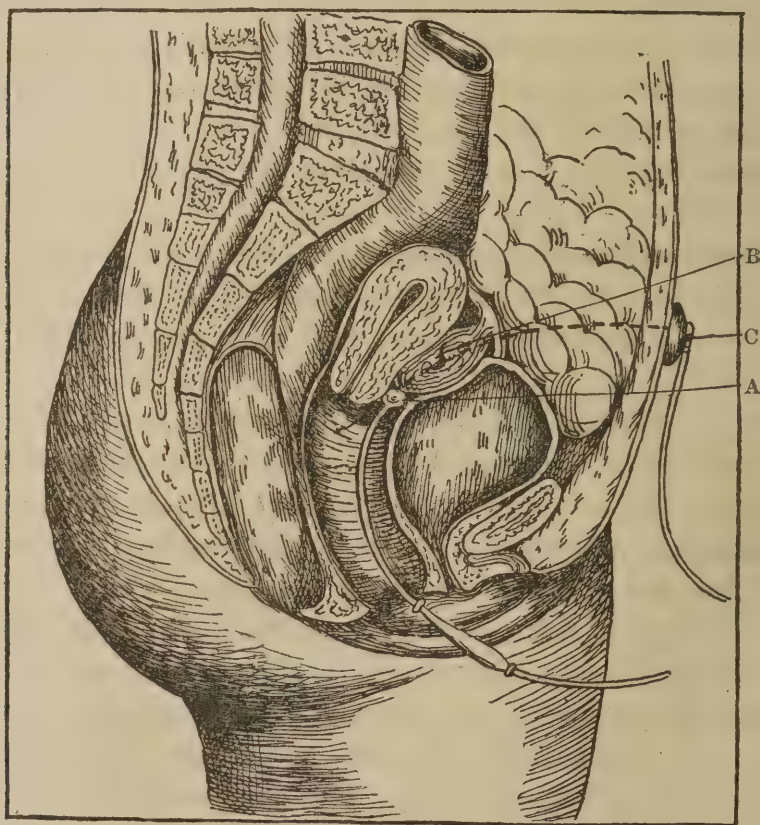


treatment of tubal gestation is its simplicity ; and yet, simple as it is, if performed bunglingly, and without theoretical or practical knowledge of the physics of electricity, the operation may be rendered neither certain nor painless.

I think it may be claimed that were this condition a frequent complication of pregnancy instead of being comparatively infrequent, it would excite far more attention even than it has, and be regarded as one of the most important therapeutic advances of our time. It cannot be too well understood that the success of the electrical treatment in these cases depends upon the stage of their progress. If detected before the third month the foetal life is readily destroyed, and under the process of absorption the imperfectly organized mass disappears, leaving hardly a trace behind.

Even after the third month cases have been successfully treated, but when advanced much beyond this stage one cannot avoid some anxiety because of the possibility of rupturing the highly-distended tubes. In the

FIG. 1.



more advanced stages it is readily appreciated that electricity would fail to be followed by the results that attend its use in the earlier months.

In the more highly developed state of the conception, its absorption and disappearance could in any event be but partial.

The diagram (Fig. 1) illustrates fairly well the position of the electrodes,<sup>1</sup>

<sup>1</sup> This diagram is taken from E. B. Treat & Co.'s forthcoming work on "Illustrated Medicine and Surgery."

and a few words will sufficiently explain the practical details of the method. The internal electrode consists of a metal bulb A, attached to an insulated stem, to be connected with the negative pole of the battery. This is carried up to that portion of the tube B where the foetus is developing, through either the vagina or rectum, according to the position and size of the tumor. Any ordinary flat sponge electrode, C, three or four inches in diameter, will answer for external application, and this is to be placed upon the abdomen directly over the foetal mass. Both currents, the galvanic and faradic, have been successfully used to destroy the foetal life; but my experience convinces me that the galvanic current is greatly to be preferred.

Space will not permit me to fully give the grounds for this preference, but they are based upon both theoretical and practical considerations. The galvanic current is more certain in its effects than the faradic, because it produces mechanical effects in equal degree with the latter, while its physical, chemical, and physiological effects are far greater. In destroying the foetal life all these properties are called in play, and in hastening the subsequent process of absorption they are especially important. If the galvanic current is used, the interruptions may vary in rapidity from twenty-five to one hundred to the minute, and with a current strength of fifteen to thirty milliampères. There is, indeed, no absolute rule as to this. We are to be governed in great measure by the susceptibility of the patient, but we should see to it that the strength of the current is not so great as to cause violent muscular contractions. A *séance* of five to ten minutes, with intervals of rest, is in all probability sufficient to destroy the foetal life; but as it is difficult at all times to positively determine this fact, it is often safer to repeat the applications on two or three successive days. If the case under observation has been diagnosticated correctly, and is truly one of tubal pregnancy, the destruction of the foetus will be followed in a very short time by an appreciable diminution of the tumor, and ultimately it will almost, if not completely, disappear. It is possible that a small cystic tumor might at first be mistaken for an extra-uterine pregnancy, but it is incredible that any such misapprehension should remain after an intelligent use of electricity.

No form of tumor, cystic or otherwise, would decrease in size with any such rapidity, if at all, as do these tubal enlargements after the destruction of the foetal life by interrupted currents of electricity. Cases of extra-uterine pregnancy that are far advanced—say to the fourth month—must be treated with the greatest care if electricity is used, and in these cases it would perhaps be better to rely upon the knife. The tube becomes, of course, greatly distended, and an injudicious application of either form of current might result in rupture. In cases of this kind there is one method of application that has in my hands proved effective and is attended with little or no danger. Reference is made to applications in which the galvanic current is rapidly increased and as rapidly decreased without interruptions. The following case affords a good illustration of this method of procedure.



I was called, some years ago, to see in consultation a young unmarried woman with this history. Two weeks previously she began to suffer much pain in the right side, together with very slight irregular discharges of blood.

The patient had confessed to the possibility of pregnancy, and examination elicited many of the objective and subjective signs of this condition.

Nausea occurred every morning, and changes had taken place in the areola. Digital examination revealed the fact that the os uteri was little changed from its normal condition.

By pressing over the right side it was possible to feel a certain hardness not present on the other side, but by conjoined manipulation with one finger in the vagina, a distinct rounded mass could be felt. Examination per rectum revealed its presence even more distinctly. If pregnancy existed,—and of this there seemed to be no reasonable doubt, it had advanced nearly to the fourth month, and as the tumor was large, much larger than in any case previously seen and treated by the electrical method,—there was evidently no time to lose. I immediately treated this patient by introducing one pole in the rectum and placing the other externally. On account of the great distention of the Fallopian tube and the danger of rupture, I felt the necessity of exercising the utmost care, and consequently made use of the interruptions with a current generated by twelve cells, representing an electro-motive force of about sixteen volts. No milliamperemeter being at hand, it is impossible to give the exact measurement of current strength. The current would then be quickly increased without interruptions, allowed for a short time to pass in a continuous stream until the patient could no longer bear the burning pain of the external electrode, and then as quickly decreased. The treatment was concluded by a second application on the following day. Visiting the patient some two weeks subsequently, I found that the tumor had decreased in size at least one-half, and in the course of a few months was hardly discernible.

The use of electricity in the treatment of extra-uterine pregnancy is a most important advance in electro-therapeutics, and is a procedure that is entirely American in its inception. It is unfortunately true that there are some who still decry the method and advocate the use of the knife in those early-discovered cases in which electricity is indicated. They cannot deny that, if detected before the third month, electricity is capable of destroying the foetal life without pain or danger to the mother. But say they—a foreign body is left and it should be removed by the knife; and this, in the face of proofs innumerable—that no possible harm results from the contents of the foetal sac, which becomes encysted and quickly absorbed.

Two assertions are made by those who oppose the use of electricity in extra-uterine pregnancy: 1. That it is not easy to detect the condition before the third month and that many supposed cases of tubal pregnancy are not cases of pregnancy at all. 2. That electricity is by no means sure to destroy the foetal life.

In reply to the first of these I have this much to say: A patient comes

to you with a cessation of menstruation of two or three months' standing, associated with paroxysms of pain, with or without a slight show of blood. On examination you distinctly feel a slight enlargement along the course of the Fallopian tube. It may or may not be a case of tubal gestation, but you treat it with electricity and the tumor quickly disappears. What could it have been? Certainly not an ordinary cyst or solid tumor, for these do not disappear in this way. The only rational conclusion is that the case was one of tubal pregnancy, the only possible condition that would thus readily resolve itself under this simple method of electrical treatment.

In regard to the second objection, the difficulty has been, perhaps, that the faradic current is too often used to the exclusion of the galvanic. It is a great mistake to rely exclusively upon the faradic current, since it is far more inefficient in its destructive properties than the galvanic. It possesses in equal degree neither the physical, the chemical, nor the physiological effects of the galvanic current, while mechanical effects are common to both currents. The galvanic current always kills.

In all the cases of extra-uterine pregnancy that have come under the personal observation and treatment of the writer, the galvanic current was exclusively used and always with success.

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## *ANKLE-JOINT DISEASE IN CHILDREN.*

CLINICAL LECTURE DELIVERED AT THE NEW YORK POLYCLINIC.

BY V. P. GIBNEY, M.D.,

Professor of Orthopedic Surgery, New York Polyclinic; Surgeon-in-Chief to the Hospital for the Ruptured and Crippled; First President of the American Orthopedic Association; Fellow of the Academy of Medicine, etc.

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I WANT to take this case to serve as a text for a talk on ankle-joint disease, as we find it among children. This child is four years of age, and has been ill for a week. The mother says that one morning when he got up the little fellow complained of pain in the foot, and that then the ankle began to swell. He went to bed as well as any child the night before; but to-day he cannot walk, nor has he been able to walk for a week. The mother knows of no fall or injury. He has been feverish and has rather a hectic look. I want to call your attention to the appearances of the foot. Let us compare the two feet; you see a distinct difference,—the right foot has a normal appearance, the salient points stand out conspicuously, namely, the malleoli and the heads of the metatarsal bones. On the left side all these points are obscured; there seems to be a general infiltration of the whole foot. That seems to be a very simple sort of thing, and possibly you are not called upon always to strip a child to examine about a little swelling about the foot; but it is a good habit to examine all children stripped



naked. You can get more information at a single glance in that way than by any amount of questioning, and save lots of time. It is a little unusual for a child with ankle-joint disease to go to bed well and get up unable to walk; that indicates an acute rather than a chronic affection. The spinal column is all right; the hips are normal; there is no genital irritation to speak of. The comparative measurements are as follows:

The right thigh about  $3\frac{1}{2}$  inches above the patella has a circumference of  $10\frac{3}{4}$  inches, the left thigh, at the same point,  $10\frac{1}{2}$  inches, a difference of  $\frac{1}{4}$  inch, but that does not amount to much. The right knee measures over the patella  $8\frac{1}{4}$  inches; the left knee, at the same point,  $8\frac{1}{2}$  inches; the right calf,  $7\frac{1}{2}$  inches; left calf,  $7\frac{1}{2}$  inches. We take three measurements of the ankle,—one over the malleolus, one over the heel and instep, one over the instep. Right ankle, then,  $6\frac{1}{4}$  inches; heel-instep,  $7\frac{1}{4}$  inches; instep,  $6\frac{3}{4}$  inches. Left ankle,  $6\frac{3}{4}$  inches; heel-instep,  $8\frac{1}{4}$  inches; instep,  $7\frac{1}{4}$  inches. That shows the trouble is about the ankle, and rules out the calf, knee, and thigh. There is some extra heat about the ankle over the cuboid, the skin is reddish; there is no fluctuation to be felt anywhere; therefore this is simply a case of cellulitis; it is a simple affair, but it serves the purpose of bringing out some points on a disease that this is not anything like. This case will get well very soon under hot fomentations and rest in bed, or by the use of cathartics, or very simple treatment. Even if it suppurates, that can be relieved promptly by lancing, but I think if hot fomentations are applied for two or three days the case will get well; then a mild laxative should be prescribed.

In contradistinction to this condition, take a case of osteitis of the ankle, or white swelling. Had the boy that, he would not have this infiltration. He might have the malleoli obscured; there might be complete destruction of the normal contour about the malleoli. These normal indentations would be abolished. There would have been tenderness over the bone, especially the cuboid or scaphoid bones. There would have been some atrophy of the calf. The child would have been lame for a longer time than we hear of to-day. The child would not have stopped walking. His mother would notice the difference in the child's gait but would not worry about it, thinking that the trouble would pass off. The case might not come under the doctor's observation for a week or two. The parents think it is simply a bad habit of the child's when it favors the knee a little. You can always determine the truth by examination. Compare the affected with the normal side as you would in a case of fracture, and refresh your memory of the anatomy in that way. You should compare the salient points on the normal and diseased sides.

White swelling is sometimes very slow. There may be a little extra heat in the joint. You may get reflex spasm on making motion. In the case before us we get none of the characteristic symptoms, therefore we can positively exclude white swelling. In cases where the disease advances further, you would have abscesses. The spaces about the ankle will become

filled in; the bones will be rather prominent; sometimes a little tumor will appear back of the malleoli bearing down towards the astragalus. You usually cannot get fluctuation for many months; the contour of the foot becomes changed, and the child is unable to walk during exacerbations, and it may go on indefinitely in that way. I will have a case to show you of this kind before long. The clinical history is important. It is a good thing to know how they terminate and what the prognosis is. I don't attach much importance to osteitis of the ankle so long as I can get the parents used to the fact that the disease requires years to cure. I used to think that these ankles were going on to destruction. Time and again I have seen in general hospitals a little child with a big ankle, covered with sinuses and abscesses, which the surgeon would say he was going to amputate on account of the disease of the foot, and properly so it seemed to me; but I was very much astonished, a number of years ago, when looking up ankle-disease in children to find that in England alone there were from seven to ten sacrificed every year from caries of the ankle, or common white swelling. There are not so many in this country, but the natural tendency is to remove the foot or gouge it out. Statistics have shown that excision of the ankle in children does not yield very brilliant results; the worst ankles seen are those after excision, nearly all of these joints have become *flail-like*. If the disease is not arrested, you will have to take the whole joint out, and that will leave a flail-like foot. Then, again, arthrectomy is condemned by good surgeons because it does not eradicate the disease. The only eradication they think much of is by amputation.

It has been proved by statistics here and on the other side of the water that the best results are obtained by non-interference. *Leave caries of the ankle in children alone, and it is bound to get well.* It may take from three to five years. The best results I have seen have been in these cases that were apparently neglected. Cases that were kept in the hospitals and treated for a long time, poulticed from day to day and put in splints, until the parents became discouraged and took them out to Harlem, where they allowed them to tramp around in the mud or do as they pleased—I have looked such cases up afterwards and found them well. They could skate, and in one case could even dance. I remember one that was in our hospital for two years. They used to cleanse the sinuses out and put on salves of all kinds, and they thought she would never get a useful ankle, but eventually I found her walking down Sixth Avenue one day and could not tell which was the lame foot. I called to see her, and found that she could flex and extend the ankle; she was going to a dancing-school, and even tried on roller-skates. I mention this that you may not be discouraged in these cases. If you want to resort to surgical interference do so; if not, let them alone. If you want to prevent deformity, put on a splint of plaster of Paris and let them go on crutches. When exacerbations occur they will naturally keep quiet and they generally come out all right in the end. All that is true in children, but don't let that influence you when you come to



adults. With caries of the ankle in adults, there is not much use in dallying or wasting time with expectant treatment. Keep good account of their general health, and if you find them running down, or if they have a tubercular tendency, or if they have weak lungs, it is best to do a good radical excision, or else amputation.

A few days ago a colleague of mine sent me up a case to look over. A boy from the country seventeen or eighteen years of age. He had an ankle that looked like ordinary chronic synovitis. It had lasted for many months. I found the malleoli enlarged and a little reflex spasm on movement. I wrote the doctor to give a six weeks' trial with plaster of Paris, and to put on a good ankle support, and if at the end of that time there was no relief, to have some of his friends perform a radical operation. So these are the points that will be of service to you both in children and adults.

CASE II.—This young lady is sixteen years of age and has had this bad knee for three years. She does not know how she got it. Some weeks she is well and some weeks she is not. She is a dressmaker and has been lame for the last couple of days. She has at times been quite well without the slightest lameness. I think the facts are that she has had a stiff knee for about three years or more, but the trouble has been so slight that it did not cause her to seek treatment sooner. Notice these two things,—the normal appearance of the patella, and how smooth the thigh is above and below the joint. You see there is a distinct sense of fluctuation felt through the knee, and you see that the ligamentum patella comes down in its normal position pressing out the fat on either side; the quadriceps femoris is also in its proper place, but yet there is unmistakable infiltration. The comparative measurements are as follows:

Right knee above the patella, 13 inches; across the patella,  $12\frac{1}{2}$  inches; below the patella,  $11\frac{1}{2}$  inches; left knee, 14, 14, and 12 inches; right calf,  $12\frac{1}{4}$  inches; left calf, 12 inches. The presumption is that one thigh is smaller than the other, but she will not allow us to measure them. The patella moves from side to side; it is not ankylosed; there is apparently a mass of fluid beneath it; here in the popliteal space you get a little thickness. This bursa under the hamstring tendons is enlarged, and as you press on it you get fluctuation on the outer side in front. There is a very decided sensation of increased heat in the part. Now you have all the symptoms,—lameness, stiffness, synovial distention; infiltration; extra heat; no atrophy of the calf; great enlargement of the knee. She is sixteen or eighteen years of age, and the condition is one of three years' duration.

I should make a diagnosis in this case of chronic synovitis of the knee with possibly osteitis. With regard to the latter, in the first place, if the history can be relied upon, it began too late for osteitis of the knee in children, or white swelling. If it had begun about ten years ago, then it would probably have been the synovitis. Secondly, against the white swelling theory there is no atrophy of the calf; and against the osteitis theory the patella is too movable; the patella would have become fixed after three years' duration. So the chances are that she has a chronic tubercular synovitis of the knee. I say tubercular, because almost all these cases are tubercular. It does not look like rheumatic synovitis, because there would have been distinct crepitation. So all the evidence goes to show that it is a chronic synovitis,—a tubercular affection.

As to the treatment: the best plan would be to introduce a trocar and squeeze the fluid out if possible; then wash the sac out well with a stream of water followed by an injection of carbolic acid solution 1 to 20 or 1 to 40, allowing it to remain in the joint five or ten minutes; then squeeze it all out and strap with adhesive straps, as you would an abscess; then put on a good compress, and lastly a plaster-of-Paris bandage; leave that on a fortnight, remove it, and then begin to move the limb, and the probabilities are that she will get well in the course of a few weeks: if that plan fails, the next thing would be to do an arthrectomy,—that is, to divide the ligamentum patella, turn the patella up, flex the joint well, and cleanse thoroughly; then place the parts in position, put in your sutures, and close the wound with or without drainage according as your antisepsis has been thorough or not; then put on your plaster-of-Paris bandage, and you will get a cure inevitably. Now if you wish to treat the case on the expectant plan you can aspirate the joint, put on a bandage, and furnish the patient with a pair of axillary crutches. Good results will often follow.

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## *SOME COMMON AURAL TROUBLES MET WITH IN PRACTICE.*

CLINICAL LECTURE DELIVERED AT BELLEVUE COLLEGE.

BY BEVERLEY ROBINSON, M.D.,

Clinical Professor of Medicine at the Bellevue Hospital Medical College, New York.

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I WAS called this morning to see a little girl who has been a patient of mine for a number of years. Following an attack of scarlet fever, she had inflammation of the middle ear with perforation of the membrana tympani, and after many weeks of continuous care the suppuration stopped.

With this case in mind I intend to devote the hour to-day to the more common aural troubles, which you are certain to meet with in your general practice, and about which it is not necessary to consult the specialist. If a child complains of pain in the ear, and there are apparently no evidences of an acute febrile disorder, the first thing I do is to examine the child's throat and see if there is any enlargement of the tonsils, or any signs of chronic pharyngitis. If either or both of these conditions exist, I can see a cause for the inflammatory trouble in the ear. You may also examine the naso-pharynx, but this is rather a difficult task in children. If the child is unable to breathe through the nose; if the child snuffles and there is a good deal of discharge from the nose; these are evidences of nasal obstruction which may give rise to the otitis, accompanied by pain.

Now let us reverse this point of view. Suppose you find a child with



fever and other symptoms of an acute febrile disorder. Such a condition frequently causes an inflammation in the middle ear, and if you practice any kind of medicine, you must be on the lookout for this complication and know how to treat it. You cannot send all these cases to the specialist. Usually the first symptom is pain. How can you relieve it? You want to be familiar with what is ordinarily done in these cases. The child complains of pain in the ear. Sometimes, before the doctor sees the patient, the parents use glycerin, or vaseline, or sweet oil, which are not likely to do any harm. Or they may apply onions or poultices, which are not harmful if the process is not repeated too often. Cologne water, chloroform, ether, and alcohol are among other remedies often employed, and these are likely to do more harm than good.

We have certain means at our command to relieve pain in the ear. One of the best is the continuous hot douche. For this purpose the best apparatus is the rubber douche-bag or fountain syringe, with a nozzle adapted to the ear. The douche-bag is held at a certain height above the patient, so that the water will flow gently into the ear. The water should be as hot as your patient will comfortably bear,—about 110° F. I think that the inflammation is somewhat diminished by adding to the hot water a small amount of borax or bicarbonate of soda, about one-half drachm to the pint. The hot water treatment is one of the best means at our command in these cases. If you do not happen to have a douche-bag the ordinary soft Davidson's syringe will answer, or you can lay the child on its side, protect the healthy ear, and pour the hot water into the other ear, thoroughly soaking it, and then letting it run out. The douche-bag, however, is the best method to employ. In syringing the ear you must remember that the external auditory canal is not straight. The inflammation is in the middle ear, affecting the membrana tympani, and you must raise the external ear upward and backward so as to straighten the canal.

In a certain number of cases the above treatment will not relieve the pain accompanying otitis. What are you going to do then? If it is an adult, the next best thing to do is to apply leeches to the ear. There is hardly a febrile condition accompanied by otitis, scarlet or typhoid fever, or meningitis, where it is not perfectly legitimate treatment to apply the leech. It may help the general condition at the same time, and may even save your patient. Where are you going to stick your leech? If you put it on anywhere excepting at one particular point it is worthless. It must be put on in front of the tragus, beneath which there is an inosculation of the vessels which come from the internal ear. Sometimes, even before the leech is full, the patient will be absolutely relieved of all symptoms,—the pain and the tinnitus aurium,—and this has occurred in cases where previous to this morphine had been given to a point where it was absolutely dangerous without allaying the pain. If you wish to favor the bleeding from the leech-bite you can do so by using warm applications. If sufficient blood has been withdrawn, the bleeding can be stopped by one of the ordinary

styptics. The one most frequently used is Rowland's styptic cotton, which is composed of cotton moistened with a solution of iron or alum. If the bleeding is very persistent it may be necessary to apply a ligature. This precaution is mentioned in all the text-books, although I have never seen a case where it was required.

If the pain is still unrelieved what can you do? In that case you should examine the external auditory canal, and see if you can recognize a portion of the drum membrane that is bulged out,—where the uneven resistance shows the presence of pressure behind it. A long paracentesis needle should then be thrust into the membrane, the upper posterior part being selected in the absence of any bulging elsewhere. The size of the opening to make in perforating the membrane must depend upon circumstances, but, as a rule, a small incision is sufficient to give exit to a certain amount of blood or serum or pus, and this will give instantaneous relief. Some aurists hold that to do this operation an anæsthetic should be given, but if the case is one of urgency, I do not see why it cannot be done without ether or chloroform. After puncturing the drum membrane, the hot douche applications can be made from time to time.

Among other means employed to allay pain in the ear, cocaine has been used, a one-, two-, three-, or four-per-cent. solution, a few drops moderately warmed; also, solutions of morphine, more or less strong; atropine, two to four grains to the ounce; the latter drug used in this way has been known to cause dangerous symptoms of poisoning. It will do no harm to apply counter-irritation over the mastoid process.

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## *PSORIASIS, SCABIES, PEDICULOSIS, AND ALOPECIA AREATA.*

CLINICAL LECTURE DELIVERED AT THE JEFFERSON MEDICAL COLLEGE.

BY HENRY W. STELWAGON, M.D.,

Clinical Professor of Dermatology.

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### PSORIASIS.

GENTLEMEN,—The first case I have to show you is one of psoriasis, and an unusually well-marked example of this disease. The eruption consists, as you see, of variously-sized, rounded, elevated, sharply-defined, inflammatory, scaly patches, and is most abundant upon the trunk and limbs, especially the extensor surfaces of the latter. The scalp is also involved to a slight degree, but the face shows but two or three insignificant spots. As a rule, it is only in the worst cases of this disease that the face shares in the eruption, and in such it is usually slight compared to the eruption upon other



parts. This man, aged twenty-five, repeats the history of many of the cases of this disease which you have seen at this clinic,—the eruption made its first appearance several years ago, at first slight and confined to the extensor surfaces of the limbs and arms, more especially the neighborhood of the elbows and knees; soon other parts became invaded, and it has so continued, with considerable variation, to the present time. (See Figs. 1 and 2.) In summer his skin is almost free. In average cases the disease often disappears in the warm months, reappearing upon the approach of cold weather. In such a well-marked case as this an error in diagnosis is scarcely possible even to the inexperienced: the variously-sized, markedly-scaly, dry, slightly-elevated, widely-distributed, sharply-defined patches of an inflammatory nature, together with the history, indicate psoriasis and nothing else. Itching may or may not be present as a differential symptom; its presence is of some value in the differential diagnosis between this disease and syphilis, while its absence is of value as between it and eczema. In this case itching is a somewhat troublesome symptom. The size of the patches, the marked scaliness, and the bright inflammatory color would be more than enough, however, to shut out all consideration of the papulo-squamous syphiloderm; while the sharp, abrupt definition of the patches, its distribution, the profuse scaliness and persistently dry character of the eruption would prevent any confusion with eczema. It is not worth our while to go into a consideration of the causes of psoriasis, as, indeed, we know practically little in regard to its etiology; in some instances the rheumatic and gouty diathesis seems to be the underlying cause, in others, debilitating influences are predisposing.

As extensive as the eruption here is, the probability is that with proper treatment the patient can be entirely rid of it in the course of a few months. As to permanent freedom nothing positive can be promised. I know from experience, however, that in not a few cases, if treatment is persisted in, the patient has a chance of remaining free; but, on the other hand, it must be admitted that a recurrence at the end of months or one or several years is, as a rule, to be expected. In cases of good robust health, and especially if the eruption shows a bright inflammatory character, as in our present case, alkalies are to be administered. *Liquor potassæ* is a favorite here, and will be advised in ten-drop doses three times daily and gradually increased to twenty-drop doses. Arsenic, which is most useful in the sluggish types of the disease, if prescribed in such cases as this, must be given with caution and its effect closely watched, as the disease may be made worse. In debilitated subjects—when, for instance, in nursing women the draining effect of the nursing seems to be the predisposing factor—remedies of a tonic nature, especially cod-liver oil, should be advised. The external treatment to be ordered in this case will be first a daily alkaline bath, using about five or six ounces of sodium carbonate to the bath. In a few days the patches will doubtless be free from scales, and then a paint of chrysarobin will be employed:





FIG. 1.—Psoriasis.



FIG. 2.—Psoriasis.



FIG. 3.—Alopecia areata.





R Chrysarobin,  $\mathfrak{z}\text{i}$ ;  
 Salicylic acid, grs. xx;  
 Ether,  $\mathfrak{z}\text{ss}$ ;  
 Castor oil,  $\text{m}\text{v}$ ;  
 Collodion, q. s. ad  $\mathfrak{z}\text{i}$ .

This is painted on, and immediately dries into a hard film; a repainting will be necessary at the end of two or three days. The patches are to be kept free from scales either by local washings with soap and water, by alkaline baths, or in some instances, where the scale-reproduction is slight, by rubbing or picking off. The favorable effect of chrysarobin shows itself by paling of the patches, which is rendered more conspicuous by the surrounding pigmentation which the remedy has caused. Should active inflammatory action of the adjacent skin be produced, as sometimes happens, the remedy is to be discontinued for several days and a soothing ointment applied. In exceptional cases, owing to this untoward action, the remedy must be set aside permanently. Other external applications next in value are tar ointment, an ointment of pyrogallie acid, thirty to sixty grains to the ounce, and an ointment of naphthol about the same strength. There is some danger from absorption in the use of pyrogallie acid ointment, and it should not be applied to extensive surfaces; it would not be applicable, therefore, in the present case, unless applied to only a limited area each day. For the patches on the scalp and face, an ointment of ammoniated mercury, thirty to ninety grains to the ounce, will be advised; chrysarobin is not, as a rule, to be used on these parts.

#### SCABIES.

The symptoms of this case, a young man, may be succinctly described as follows: For several weeks he has been suffering from intense itching, more especially at night, with the gradual but rapid appearance of scattered papules, vesicles, and pustules over various parts of the surface, more particularly between the fingers, on the flexor side of the wrists, at the axillæ, the lower abdomen, the genitalia, the region of the anus, and down the inner sides of the thighs and legs. The face and head are not involved. Scratch-marks are added as a natural result of the intense itching. It will be noticed upon close inspection, also, that many of the papules, vesicles, and pustules are linear in shape,—that is, are longer than they are broad. With this brief outline of the symptoms, which you will corroborate by an examination of the case, a diagnosis of scabies is readily reached. The common, more or less generalized itching skin-diseases in which these lesions may be found, are eczema, pediculosis, and scabies. Eczema is readily excluded in this case by the discrete character and comparatively large size of the lesions, with the absence of any special tendency to patch-formation, and by the peculiar distribution; in an eczema of such wide distribution, too, the face rarely escapes. Pediculosis corporis is characterized by various lesions of irritation, as in this patient, but you will find the eruption and



excoriations only on covered parts, especially where the clothing lies in close contact with the skin, as, for instance, across the shoulders, around the waist, over the sacral region, and down the outside of the thighs, while the hands are free; an entirely different distribution. In short, the case before you gives you a fairly typical example of scabies, or itch. The disease, due, as you know, to the invasion of the itch-mite, has certain features which are more or less characteristic. First of importance, because it rarely fails, is the peculiar distribution of the eruption; add to this a history of contagion often obtainable, or the statement that the disease began to develop after sleeping in a strange bed, and you will be justified in looking upon the case as in all probability one of scabies. The so-called "burrow," consisting of a punctate-looking, slightly elevated, straight, zigzag, or tortuous line, of an eighth to a half inch long, usually seen about the fingers, on the wrist, on the shaft of the penis in the male, and about the nipples in the female, if found, is, of course, pathognomonic. One or several of these formations are usually to be seen in cases at all advanced or developed, but it may, however, as in the present case, be lacking. You will find in every case, about the parts just referred to, the linear character of many of the lesions to which I have already called your attention. This tendency to linear shape is due to the fact that a burrow has been in course of formation, but that the irritation caused has produced an exudation of serum, resulting in a linear papule, vesicle, or pustule. In private practice the diagnosis of scabies is not always so simple a matter, the solicitude of the average person and the frequent washing and frequent change of underwear preventing an extensive development. In such cases the presence of scattered lesions, even though few in number, of the distribution outlined above, is always extremely suggestive.

The treatment of scabies is as simple as it is rapidly successful. This patient will be advised to begin with a soap-and-hot-water bath, and then directed to rub in, night and morning for three days, an ointment such as the following:

R Sublimed sulphur, ʒi-ʒiii;  
 Balsam of Peru, ʒi;  
 Naphthol, gr. v-gr. xxx;  
 Lard, q. s. ad ʒi.

Four ounces of such an ointment will usually suffice for the treatment. This is to be well rubbed in on every part of the surface from the neck down, particular attention being given to the most affected regions. After the final application another bath is taken, the patient at this time changing the underwear and bed-linen. The proportion of the sulphur, as well in fact as the naphthol, depends upon the age and the irritability of the skin. In those cases in which the eruption has been extensive, or in those in which the ointment has given rise to more or less cutaneous disturbance, it is well to advise the daily application of a mild soothing ointment for several days following the active treatment. Ordinarily one such course will rid the

patient of his trouble; but in dispensary practice, or in other cases in which the remedy is not thoroughly applied, evidence of a recurrence may begin to show itself at the end of a week or ten days, in which event a repetition of the treatment becomes necessary.

#### PEDICULOSIS CORPORIS.

The third case becomes of greater interest when studied in connection with the preceding case. This man presents papules, pustules, a few wheals, several boil-like formations, and numerous scratch-marks over the whole body-surface, exclusive of the head, face, and hands. Upon certain parts, however, these various lesions are conspicuously more numerous, especially across the shoulders and the upper part of the back, around the waist, over the sacral region, and down the outside of the thighs. In other words, on those parts upon which the clothing rests or comes in closest contact, you find the cutaneous disturbance most marked. The multiformity of the eruption, the intense itchiness, as shown by the scratch-marks, and the distribution are symptoms which, taken together, lead almost with certainty to a diagnosis of pediculosis corporis. Another lesion which is present, but which can be seen and recognized only upon close inspection, is a minute hemorrhagic point, as if a needle had been thrust into the skin and then withdrawn; this is, in fact, what essentially takes place, the louse sticking its proboscis into the dermic tissue, sucking nourishment and then withdrawing it, a minute hemorrhage following. The pediculi live in the clothing, more particularly where there are hiding-places, and also where the skin is of nearest and easiest access,—for these parasites are not, as is the itch-mite, found in the skin, but seek the integument merely for the purpose of feeding, retiring immediately to the clothing. This explains the peculiar distribution of the lesions in such cases. Compared with the case of scabies, which you have just seen, you will observe that although in its general aspects the eruption is similar, yet the distribution is strikingly different. In searching for pediculi in these cases, always inspect closely the seams of the collar-band of the shirt and under-shirt, as well as the seams of the front opening of this latter, as these are favorite hiding-places. As a rule, there is no difficulty in discovering one or more, unless the patient just before his visit had changed his apparel. In cases lacking such ocular proof, the distribution of the lesions and excoriations point suspiciously in the right direction. The affection should not be confounded with simple pruritus or with urticaria.

The treatment of pediculosis corporis consists really in the treatment of the clothing. The object is to destroy all parasites and their ova. This is accomplished by subjecting the clothing, the underwear, and bed-linen to intense heat, either by boiling or baking. All the underwear which could have become in any way exposed to possible infection should be so treated, or the disease, apparently relieved, starts afresh so soon as the few parasites or ova which have escaped destruction have time to hatch out and reproduce.



The patient himself will be advised to take an ordinary bath, and to apply a mild ointment, or wash of carbolic acid, thymol, or boric acid, once or twice daily, to allay the irritation which has been provoked. These measures in private practice, where the condition is fortunately comparatively uncommon, will suffice. In dispensary cases it is not always easy to have even such plain directions well carried out, and it is advisable also to order the use of an ointment or lotion containing some medicament destructive or distasteful to the pediculi. The several remedies commonly employed are stavesacre,  $\beta$ -naphthol, sulphur, and carbolic acid,—the first three in the form of ointments: stavesacre, one or two drachms to the ounce;  $\beta$ -naphthol, five to thirty grains to the ounce; sulphur, a half to one-and-a-half drachms to the ounce; carbolic acid in the form of a lotion, one to three drachms to the pint of water.

#### ALOPECIA AREATA.

The last case, a woman aged thirty, I have to show you is one in which the scalp is the seat of the disease. As you look at this patient you are immediately struck by a symptom which is readily recognized at a distance, and that is the loss of hair. Another symptom equally striking is that the loss of hair occurs in patches. These symptoms bring you close to the diagnosis. On nearer examination you find that the skin of these patches is perfectly smooth, entirely bald, free from scaliness or crusting, and that the follicles are possibly somewhat less prominent than on healthy parts of the scalp. The several diseases in which you may have more or less hair-loss occurring in patches are ringworm, favus, syphilis, and alopecia areata. The first-named does not occur in adults and need not therefore be considered, unless the patient be a child. Ringworm differs from this disease in being scaly, less completely bald, possibly hyperæmic, with somewhat more prominent follicles than upon the healthy scalp, and exhibiting over the patch brittle, broken-off, and nibbled-looking hairs. Favus is readily excluded in the present instance, inasmuch as in that disease crusting is an essential symptom, and you have involvement of the hair the same as in ringworm, and you have, moreover, marked atrophy and even scarring. As to syphilis, the only way it produces patches of baldness is as a result of some local destructive action; hence you would expect to find here the presence of infiltration or evidence of atrophy and scarring, and possibly ulceration, all of which are lacking in this case. The only disease of the four above mentioned which remains to be considered is alopecia areata, and this, indeed, corresponds in all its symptoms to the case before you,—smooth, bald patches, rounded, or forming irregular areas by fusion. Posteriorly you see in this case one or two typical rounded patches, and anteriorly large irregular areas of baldness. (See Fig. 3.) There is no scaliness, no hyperæmia; no symptom, in fact, except the patchy baldness. On the oldest patches a downy growth is making its appearance. The disease may go on in this way, the downy hairs gradually growing stronger and darker, or this may fall out again, and thus repeat itself several times

before finally remaining. As ordinarily met with two or three patches are present; the case before you is somewhat more extensive than an average case. In exceptional instances the hair of the entire scalp is lost, and in rare cases the eyebrows, eyelashes, and every hair of the body disappears.

Two views are held as to the cause of alopecia areata, some looking upon it as parasitic and contagious, and others as tropho-neurotic; the latter is the predominant view held by American observers. While the French especially consider it contagious, as evidenced by the epidemics they have reported, the reports of cases met with in this country, with possibly one or two exceptions, indicate the disease to be free from contagious properties. In my own experience, I have never seen two cases in the same family, and never a case that could be traced to another. But, on the contrary, several cases have come under my care in which the disease was unmistakably the indirect result of some accident or other nervous shock. It would seem that the conflicting reports on this point by competent observers can be explained only by the assumption that there are two varieties of this disease,—the contagious (parasitic), which must be extremely rare in this country, and the tropho-neurotic.

A favorable opinion as to the outcome may be given in all recent cases of alopecia areata occurring in those under the age of thirty or thirty-five; in older patients and in cases of extreme severity and long duration in which there is evidence of beginning obliteration or atrophy of the follicles, the prognosis must be guarded. Even favorable cases may require several months or a year before a permanent impression is made upon the disease. The external treatment, in spite of my belief in the non-parasitic nature of the disease, seems to have a greater influence in promoting the hair growth than do internal remedies. I believe, however, that constitutional treatment is of value and often essential to permanent cure. The object of all external treatment is to bring about a mild degree of hyperæmia and irritation in the affected part, in this way impressing the nerve-supply and influencing nutrition. An excellent application for this purpose, which is being used in the present case, is one composed of—

R Oil of turpentine,  
Tincture of cantharides,  
Oil of cade, in equal parts.

If the tar odor is disagreeable the tincture of capsicum may be substituted in this formula. The officinal sulphur ointment, full strength or weakened if required, is also a valuable local remedial application. Chrysarobin, in the form of an ointment, twenty to sixty grains to the ounce, and  $\beta$ -naphthol about the same strength, are useful in many cases. Whatever is used should be well rubbed in, not only to the patches but one-fourth to one-half inch beyond the borders. In several instances in which the disease has been limited to one or two spots which have remained stationary for some time, repeated paintings with tincture of iodine and blistering with



cantharides have been employed. The constitutional treatment, which should always be of a tonic nature, is in the main based upon general indications. Arsenic is given as a matter of routine, with the belief that it has shown a positive influence in a number of cases. Pilocarpine and sulphur have both been given internally in some of my cases, but the results have not borne out the good opinion expressed by the advocates of these remedies.

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### *HOW TO AVOID SUNSTROKE.*

BY CHARLES H. SHEPARD, M.D.,

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SUNSTROKE occurs only when persons are exposed to great heat, either solar or artificial. It is not peculiar to any country or climate, nor are malarial or other states of the atmosphere predisposing, except as they reduce the general vigor of the individual and thus render him susceptible to the influence of heat. It has been found that a dry air, such as that of North India, with hot winds, is much better tolerated at a high temperature than the damp atmosphere of Bengal at a much lower one, because dry air favors evaporation, and thus keeps the body cool, while in the damp, heavy atmosphere the natural cooling function is almost in abeyance. Vigorous, healthy persons, of moderately spare frames, leading temperate and regular lives, can tolerate a large amount of heat in an otherwise pure atmosphere, and are but little liable to suffer from it. The native Indian can bear an amount of sun on his shorn head, neck, and half-naked body with indifference, if not with pleasure, that would very soon prostrate a European, but whenever the temperature rises above a certain standard even the natives of India suffer and die. The exact amount and duration of toleration of a high temperature depends, to a great extent, therefore, on the vigor of constitution and the present state of health. The natural refrigerating powers of the body, when in health, are such as to enable men to support very high temperatures, much above that of the normal state of the body. Thus, in hot, dry winds no inconvenience beyond discomfort is felt, so long as transpiration and perspiration are free, which cool down the body, enabling it to resist the great heat. It is obvious that in this there is great expenditure of force, and, when it fails, suffering soon ensues. Disordered health, dissipation, over-fatigue—anything, in fact, that depresses nerve-power—reduces the normal physiological capacity, and consequently renders a man more liable to succumb.

During the hot spells incident to our climate, it is well to bear in mind many things that go to mitigate their severity. A serene and even temper is most desirable, and that will be more easy of attainment after carrying

out the following suggestions: Do not begin in the morning by loading the stomach with unnecessary food. A full diet frequently brings about a feverish condition in digesting and disposing of the surplus, while a spare diet aids most materially in keeping the body cool, and a wise selection in the choice of foods is also important. We are compelled to change our clothing with the weather, why not change our diet? It acts like a change of air, and the heat of the body is more perfectly equalized by the food that is taken than by its clothing. Ripe fruits and cereals come first on the list and are easily available and assimilable. A large proportion of summer food should consist of green vegetables. Meats and condiments should be used sparingly, particularly so as to oily kinds of food. Starches, sugar, and fat are the kinds that keep up the heat of the body. Certainly what are termed rich forms of cooking should be tabooed. More than half the illnesses that occur are due to improper dieting. If the body is well and rightly nourished disease cannot get a foothold. Drink sparingly of everything but water, avoiding stimulants and tonics of all kinds. The simplest and best of all drinks is pure cold water, which helps to purify the system, and were its cost equal to that of alcohol ("fire water") it would be considered more valuable. The more pure the water the greater its power of absorption of poisons. Place a vessel of pure water in a newly-painted room, and in less than twenty-four hours it will have become thoroughly impregnated with lead poison from the paint and dangerous to drink. We drink pure water and it leaves the system as perspiration charged with the excretions of the body.

Let the dress be loose and comfortable, seeking also what rest and recreation may be obtainable, using moderation in all exercises. It was Cicero who said, "To live long, it is necessary to live slowly." Especially for those necessarily exposed to the direct rays of the sun, temperance in all things is the one necessity. In tropical climes, where our hottest spells would be temperate summer weather, the people suffer less from heat than do the people of our generally comfortable climate. They adjust themselves to the heat, and regulate their diet, drink, wearing apparel, and exercise to the situation; they shut themselves up in the heat of the day, and enjoy the mornings and evenings, which are devoted to labor or pleasure. Whereas with us, where the heat is the exception, we suffer needlessly, simply because by our habits we aggravate its results.

Next in order, to protect one from the heat, is a systematic course of bathing. A simple hand-bath the first thing in the morning is most agreeable, and within reach of all; a plunge all over in cool water is invigorating, so is a warm-water bath, followed by a cold shower; so also is sea-bathing when not overdone by remaining in the water too long; but this cleans only the external man, while the most complete form of bathing, which is a sweating-bath, purifies the whole internal man. This is found culminated in the Turkish bath, which is a hot-weather luxury. A brief statement will indicate its philosophy. During the heated spell the circu-



lation of the blood is rendered more active, its impurities are brought to the surface ; these, if not washed away, are an element of danger, and liable to irritate, producing in some aggravated cases what is called prickly heat. That is why such a sense of relief comes after a good sweating-bath ; indeed, if proper care is taken of the body, the season of heated spells will be of great benefit to the body instead of a season of danger. The hot air of the bath also quickens the action of the skin, and sets at work its immense drainage power. The advantage of having the inflammatory conditions of the blood eliminated by the action of heat is incalculable. When this is accomplished the receptive power of the body to all good influences is very much enhanced. Perspiration is a wonderful provision of nature to protect the body from heat, no matter what the temperature of the air by which it is surrounded, for perspiration carries off the surplus heat the same as steam from boiling-water prevents its temperature from rising above  $212^{\circ}$ , and thus the temperature of the blood remains the same under all varying conditions. It is through the action of this law that the hot-air bath is so beneficial. A person who perspires freely over his daily task is cleaner, in the true sense of the term, than the best surface-washed individual in the land.

The Turkish bath is a simple, safe, and pleasurable means of preserving the health, and has been credited with the cure of a large variety of diseases ; but that treatment is only an enlargement and intensifying of these very processes. Why should we waste our strength on efforts to placate some unknown deity, when by simple living and following common-sense rules we avoid the causes of our physical weaknesses, invigorate our system, and are rendered less liable to sunstroke ?

# REVIEW OF MEDICINE.

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## MEDICINE.

IN CHARGE OF JUDSON DALAND, M.D.,

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ASSISTED BY

JOSEPH P. TUNIS, M.D.,

Philadelphia.

**Pneumonia in Boston during the Recent Epidemic of Influenza.** (*Boston Medical and Surgical Journal*, May 26, 1892, p. 518.)

Dr. George B. Shattuck writes an elaborate article on this subject, accompanied with several statistical tables. He criticises the conclusions reached by his brother in an article on this subject written after a previous epidemic. In most of their deductions the writers agree. Pneumonia was unusually prevalent in Boston during the height of the influenza epidemic. Dr. Pepper has found that, among Philadelphia practitioners, the catarrhal form was almost twice as frequent as the croupous variety. This differs very greatly from the results obtained in the Boston hospitals. The writer concludes that pneumonia was a sequel rather than a concomitant or complication of influenza.

**Hot Blanket Packs in the Treatment of Fevers.** (*New York Medical Journal*, May 28, 1892, p. 606.)

Dr. W. W. Bremner describes in detail his method of reducing temperature in the treatment of typhoid fever and other febrile diseases. He employs a blanket just large enough to completely envelop the patient, folded lengthwise twice and then rolled up into a moderately tight roll. A boiling solution of soap, made by dissolving two ounces of good soap in two quarts of water, is then poured slowly into the centre of each end of the roll of blanket so as to thoroughly saturate it. A bed is then prepared by covering it with a Mackintosh sheet, over which is laid a large, dry, double blanket. The patient should be undressed and have a loose blanket thrown over him until he can be enveloped in the hot blanket and the dry one wrapped around him. The arms are enclosed on both sides, first with a wet blanket and then with a double dry one, care being taken to make the latter fit closely around the neck. If the feet are cold, a hot-water bottle should be applied to them. The pack should be continued from one to two hours, according to the state of the temperature and the feelings of the



patient. Children often fall asleep during the application and seem to rather enjoy the procedure. After the blankets are removed, the patient should be gently rubbed with a soft towel and replaced in the ordinary bed. The pack may be repeated two or three times a day or as often as necessary, until the temperature remains permanently below the danger-point. Cold applications may be made to the head, and the patient may be supplied with cold water to drink as often as he wishes. The writer believes that this method of treatment has all the advantages of cold-water applications without any of their drawbacks, and that the temperature can be lowered, by a process of evaporation, in this way just as certainly as by the use of cold water, so highly recommended by the followers of Brandt.

Differential Diagnosis of Rubeola and Rubella with Special Reference to the Enlargement of the Glands of the Neck. (*University Medical Magazine*, June, 1892, p. 634.)—Dr. J. P. Crozer Griffith believes that the majority of those who have seen much of these two diseases or have studied them carefully consider that they are quite distinct from each other. The difficulty in diagnosis consists in the fact that the symptoms of rubella vary greatly within certain limits. This is especially true of the eruption, which may be either a rubella morbilliforme or a rubella scarlatini-forme, or present every gradation between these two extremes. In arriving at a diagnosis the following points should be considered. The *incubation* of rubeola is about fourteen days, while the incubation period of rubella varies from one to three weeks. The mode of invasion is quite different in the two affections. The prodromal symptoms of the former extend over about three days. There may be coryza, cough, increased lachrymation, or photophobia. Sometimes there are symptoms of croup. The temperature is elevated; the child is sleepy; vomiting may occur. Sore throat is unusual.

In rubella, on the other hand, the prodromal symptoms may either be unnoticed or last but from twelve to twenty-four hours. They resemble the catarrhal symptoms of measles in a slight form. Vomiting is rare, sore throat is common, fever is absent. Drowsiness is generally observed. In typical cases of rubeola there is a distinct papular reddish rash, which appears first on the face on the fourth or fifth day of the disease. The papules show a disposition to arrange themselves in groups forming straight or curved lines, and later becoming confluent. The rash requires from one to three days to cover the whole body, when it begins to fade, first from the face, then from other parts. The severity of the symptoms increases with the development of the eruption. Diarrhœa may occur and bronchitis is frequent.

Rubella, on the other hand, presents an eruption which varies greatly. Ordinarily it consists of pale-rose, indistinct maculo-papules, slightly elevated, and smaller than those seen in measles. They are discrete, closely placed, and widely diffused. It passes over the body like a wave, reaching

its greatest intensity on any part within from twelve to twenty-four hours after its appearance there.

While some writers regard enlargement of the superficial cervical and posterior auricular glands as pathognomonic of rubella, slight enlargement of these glands may occur in both diseases, but is more generally well pronounced in rubella. So that this latter symptom cannot be considered as of much diagnostic importance in distinguishing between the two diseases.

**A Case of Giant Growth of the Colon Causing Habitual Constipation.** (*University Medical Magazine*, June, 1892, p. 623.)

Dr. Henry F. Formad records the case of a human colon of dimensions equal to that of a cow, and the article is accompanied by illustrations which show very clearly the great disproportion between the normal colon and this pathological condition, and the astonishing appearance of the patient. At twenty years of age the abdomen had reached such enormous size that he was exhibited in a museum as the "balloon man." The circumference of his body at this time was equal to his height, and he was able to increase or diminish the circumference of his abdomen or chest, at will, to the extent of fourteen inches. At the autopsy the colon, roughly speaking, had the appearance of being at least ten times wider than normal. Dr. Formad, after reviewing the literature of the subject, believes that this case differs from all others on record in the following points:

1. That the enlargement or dilatation preceded and was the cause, and not the result, of the coprostasis or chronic constipation.
2. There was no acquired morbid change, such as colitis or obstruction of the bowel, that led to this condition.
3. The mode of death was not due to ulceration or perforation of the bowels or to peritonitis, as in the cases on record.
4. The specimen exceeds in magnitude the few cases heretofore recorded.

**Appendicitis: Its Diagnosis, Pathology, and Treatment.** (*New Albany Medical Herald*, May, 1892, p. 435.)

Dr. L. S. McMurtry gives a brief *résumé* of this subject. Appendicitis, in the writer's opinion, is the most frequent of all the causes of peritonitis in the male, and a frequent cause of the same in the female. This inflammation may vary from the simple catarrhal form with infiltration of the submucous tissues to perforation and complete gangrene of the part. The course of the case may be acute, subacute, or chronic, giving a clinical history which may be characterized as fulminant, explosive, recurrent, or mild. In diagnosing appendicitis it is impossible to give an accurate estimate of the extent and severity of the lesions. Sometimes the condition may be mistaken for simple intestinal disturbance and passed by unnoticed. On the other hand, cases which may be quite severe and characterized by pain, tenderness, swelling, and febrile action may yet terminate in resolution and complete recovery. In the latter class inflammation is very apt to



recur. Whether it is best to operate should be determined more by the grade of inflammation than by the time it has existed. "When a diagnosis has been made and three days have elapsed without diminished pulse-rate and temperature, operation should be done." The writer believes that operation involves less danger than delay, and should be resorted to in all cases in which a high grade of inflammation is persistent.

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## THERAPEUTICS.

IN CHARGE OF ALEXANDER D. BLACKADER, B.A., M.D.,  
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**Acute Hodgkin's Disease.** (*British Medical Journal*, April 30, 1892.)—By J. Dreschfeld, M.D., F.R.C.P.

The author, in a very interesting clinical lecture, in which he refers to the diagnosis, prognosis, and pathology of this somewhat rare disease, says, "The treatment of acute Hodgkin's disease is the same as that for chronic Hodgkin's disease,—rest, light and nutritious diet, the administration of arsenic in gradually-increasing doses, iron and other tonics, and iodide of potassium. From the good effects which I saw in one case, I would also recommend mercurial inunction, though, of course, taking care not to produce salivation, or any of the signs of mercurialism."

**Certain Questions on the Treatment of Diabetes.** (*Lancet*, April 23 and April 30, 1892.) By C. H. Ralfe, M.D., F.R.C.P.—In an interesting paper read before the Medical Society of London, Dr. Ralfe discusses the questions: 1. In cases of confirmed diabetes, running a protracted course, may any relaxations from the usual dietetic restrictions be permitted? 2. In such cases, at what period of the disease should opium or its derivatives be commenced, and how far may they be pushed? The author, after emphasizing the extreme susceptibility of diabetic patients, in whom the sugar had been stopped by the diet, to relapse on very slight and inadequate resumption of sugar, discusses whether the advantages gained by an absolute adherence to a diet of proteid substances may not be gained at too great an expense to the patient's well-being, and whether some advantage may not be derived in other directions by permitting a slight relaxation from too rigid a proteid dietary. His answer is in the negative, and is as follows: "From a careful consideration of a very fair number of cases, I can confidently assert that the admission of any article containing starch or sugar is always followed by an increase of the disorder, which, if persisted in, becomes a definite advance. This increase is more marked in some patients than in others, and some patients rally more quickly from an indiscretion than others. Still the fact remains that any article ingested containing sugar increases the glycosuria, and lowers the assimilative pro-

cesses in the body. Neither a modicum of wheaten bread, nor potato, nor the use of subacid fruits, is sufficient to counteract the danger arising from the morbid products of a defective proteid metabolism, a danger incidental to the disease itself, while such substances are decidedly hurtful in other directions." To obviate this risk he recommends every hygienic and therapeutic means at our disposal for improving our patients' health. He especially emphasizes two points: (1) The regulation of the amount of the proteid food ingested. Diabetic patients, he says, are often encouraged to eat more than they require or can assimilate. At the same time the importance of plenty of green vegetable food should be insisted on. (2) Massage, both general and over the abdominal viscera, often effects a wonderful improvement in the condition of these patients.

With regard to the time when opium should be commenced, he says that so long as the glycosuria can be removed by diet alone, opium should not be given; for, when once administered and then left off, a much larger quantity is required to produce the same effect when it has again to be ordered. He cautions against the danger of suddenly reducing the dose after it has been administered for some time, especially in advanced cases. As to the mode of administration, he advises it to be given by the mouth, about an hour after the meal. He thinks at this hour it does not disorder the stomach nor digestion so much as when it is taken fasting. As regards the preparation to be used, he states his preference for a combination of the crude opium with a salt of morphine or codeine. Lastly, in fixing the dose, it is important to find out the patient's capacity for the drug, and discouragement should not be felt if the patient complains or is made uncomfortable on first commencing its use. A difficulty lies in determining the right time to increase the dose. In general the error lies in too great caution. As soon as the glycosuria ceases to be absolutely controlled by diet restrictions, he thinks that opium should not only be given in doses that sensibly affect the secretion of sugar, but should be increased until they either control the glycosuria or until no further reduction is obtained in the amount of sugar passed on increasing the dose. We should then recognize that the drug has been pushed to its fullest sugar-restricting capacity, and no further increase should take place.

**The Treatment of Erysipelas.** (*Therapeutic Gazette*, April, 1892.)—In an editorial article, the writer states that, in his experience, the treatment which has yielded the best results consists in washing the part which is affected with a solution of bichloride of mercury in the strength of one to ten thousand, and then thoroughly anointing the skin with an ointment of ichthyol, two drachms to the ounce of lanolin or benzoated lard. This is applied freely, and the part protected by a layer of salicylated cotton and a gauze covering. This treatment, it is claimed, produces a rapid limitation and subsidence of the disease. In addition, however, full doses of the tincture of the chloride of iron should be given and repeated somewhat



frequently. In connection with these remarks the following conclusions, reached by Klein, of Warsaw, are given : 1. Ichthyol undoubtedly checks the progress of the disease, either by its reducing action on the tissues, or by its direct action on the micro-organism, or by both actions simultaneously. 2. Ichthyol shortens the mean course of the disease by about one-half. 3. The treatment is continued from three to four days. 4. The course is considerably milder when ichthyol treatment is employed.

**The Treatment of Tabes Dorsalis.** (*Die Behandlung der Tabes. Berliner klin. Wochenschrift*, Nos. 17 and 18, 1892.) By Prof. E. Leyden.—In this very interesting article, Prof. Leyden first refers to the drugs most commonly employed. He does not oppose the use of mercury, but rejects altogether the syphilitic origin of the disease. The cases which have been benefited most by it have been examples of peripheral neuritis. The treatment by baths sometimes yields good results, and electro-therapy he thinks a valuable method of treatment. In the treatment by suspension and in nerve-stretching, he does not put much faith. He thinks very highly, however, of what is called the compensatory treatment of this disease,—that is, when the disease is incurable the disturbance of function should be minimized as much as possible. In this way ataxy may to some extent be compensated by the use of gymnastic exercises, and on this subject the writer refers to the very valuable paper by Fraenkel (*München. Med. Wochens.*, 1890, No. 52) describing the use of these graduated exercises. The author cautions against the indiscriminate use of morphine in the pains and crises of the disease. The rapid loss of weight sometimes occurring in the gastric crises must be counterbalanced by good feeding during the intervals. Sufferers must be cautioned against over-exertion, undue exposure to the weather, and excesses of all kinds.

**On the Use of Cocaine in Genital Irritation in Men.** (*Therapeutic Gazette*, May, 1892.) By H. Wells, M.D.—The writer gives a series of cases in which genital irritation in men was much relieved by the injection of about half a drachm of a four-per-cent. solution of cocaine into the posterior urethra. He recommends the application of the solution locally in cases of irritation of the glans or prepuce in growing boys, and in the nocturnal incontinence of urine sometimes dependent on such irritation. The effect, according to the writer, lasts for some time. He was led to this use of the drug by noticing that, after the free use of cocaine in nasal and pharyngeal catarrh, on all occasions, when he was able to examine it, the penis was much retracted, and there was a decided reduction in the sensitiveness of the glans.

## NEUROLOGY.

IN CHARGE OF CHARLES W. BURR, M.D.,

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**On the Diagnostic and Prognostic Value of Tendon Reflexes.**  
(*Medical Record*, New York, July 2, 1892, p. 1.) By John Ferguson, M.A., M.D. (Tor.), L.R.C.P. (Edin.).

The physiology of the tendon reflexes is a matter of much dispute. Some maintain that they are of a reflex character and of spinal origin, while, on the other hand, equally competent observers consider that they are due to a mechanical excitation of the muscle, such as a blow upon its tendon. But there is not such a great difference between these views when both agree that the state of muscular irritability which causes the muscle to respond to excitation is due to a nerve-stimulus supplied to it from the spinal cord. The writer believes that the tone of the muscle is due to its normal and healthy connection with the spinal centre; and this latter receives its stimulus from the cerebellum, the cerebellar influx, and is held in check by the cerebrum, the cerebral inhibition. Derangement of this mechanism would result in either a deficiency, an exaggeration, or an abolition of the reflexes.

When the control of the cerebrum is removed by the occurrence of a hemorrhage, the growth of a tumor, the existence of a degeneration, or an epileptic paroxysm, the muscular irritability increases and the tendon reflexes are exaggerated. In cases of cerebral hemorrhage the tendon reflexes may be enfeebled or abolished, provided the apoplexy was of sudden origin. No special prognostic value can be attached to the *absence* of the deep reflexes in such cases, as the real causes of the abolition of the tendon reflexes are the position and the suddenness of the hemorrhage rather than its extensive character. In the great majority of cases of cerebral hemorrhage the reflexes soon return. If there is any pressure on the cerebellum, however, the reflexes will not return as long as this pressure lasts. In cases of cerebellar tumor the knee-jerk is usually wanting, and cerebellar titubation may be present.

In cases of injury to the spinal cord, where the reflexes are absent after a lapse of several weeks, the prognosis is very grave, as the indications are that the cord lesion is a very serious one. In all diseases or injuries of the motor areas of the brain, causing a loss of control over the spinal cord; in all injuries and diseases of the motor paths, capsular, crustal, or pyramidal, by which the influence of the cerebral cortex is cut off from the spinal centres, there is developed a condition of extreme excitability of the reflexes. Such conditions as spastic paralysis following some lesion in the motor tracts, primary spastic paraplegia, cerebral spastic paralysis of children, the ataxic paraplegia of Gowers, and multilocular sclerosis, are all conditions in which we meet with an exaggerated condition of tendon reflexes. The



sooner the knee-jerk becomes increased in these cases, and the greater the degree of this increase, the worse must the prognosis be. After a careful study of a number of cases of general paresis the writer concludes:

1. When the knee-jerk is little affected, the disease in the cerebrum is not very extensive; and the more rapidly the disease increases the more rapid will be the increase in the knee-jerk.

2. When the knee-jerk is reduced or lost there is coincident disease in the spinal cord, either of the postero-external columns or of the anterior cornua.

3. If the disease be in the posterior columns there will be symptoms pointing to this, as found in tabes dorsalis.

4. When the cord disease is in the anterior cornua, along with the loss of the knee-jerk there will be flaccidity, atrophy, and degeneration of the muscles.

5. The loss of the knee-jerk, due to either of these morbid changes, would call for a very unfavorable prognosis, and would preclude much hope of even a temporary arrest of the disease.

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## PEDIATRICS.

IN CHARGE OF T. M. ROTCH, M.D.,

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ASSISTED BY

E. M. BUCKINGHAM, M.D.,

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Observations upon Glycosuria in Infancy, together with Experiments in Alimentary Glycosuria. (From the clinic of Prof. Epstein, Prague, *Jahrbuch für Kinderheil.*, 34. Band, 1. Heft, p. 83.) By Dr. Julius Grösz.

The writer attempts to prove if, and under what circumstances, glycosuria occurs in infants; also if it is an "alimentary" glycosuria. Studies of fifty infants were made, all being breast-fed and under four weeks old. Twenty-four were in health. Most of the others had gastro-intestinal symptoms. Urine was repeatedly examined, and at different times of the day, control tests being always made. Trommer's and Nylander's tests were those used, and, when there was enough, urine polarization and fermentation also.

Trommer's test gave a positive reaction in three-fifths of the cases, being a majority both of the well and of the sick,—that is, in both conditions reducing substances were present in the urine. Control experiments with Nylander's test gave a positive reaction in but one-fifth of the cases, most

of these having gastro-enteritis. The polariscope could be used but twice, and each time deviation to the right occurred. In these two cases the fermentation test was negative. Nylander's test gave constantly positive reaction in two, and transitory in five of the fatal cases. In three cases of dyspepsia it was transitory. Where positive reaction occurred the urine was highly colored and abnormally acid.

Conclusions: (1) Glycosuria does not occur in healthy breast-fed babies. (2) In certain digestive disturbances, either of dyspeptic or gastro-enteric origin, there is sometimes present in the urine a strong reducing substance, which gives the qualitative tests for sugar, and sometimes the polarimetric but not the fermentation test. (3) This substance is present either temporarily or constantly. (4) In two cases it was possible to prove the presence of a substance which gave a deviation to the right of the polariscope, but which was not fermentable. If these two cases are admitted to have been glycosuria, then this gives a relative frequency of four per cent. This frequency seems to point to its being a glycosuria of alimentary origin. In these two cases of severe gastro-enteritis, glycosuria disappeared when the infants were taken from the breast and fed upon tea, and returned when they were again put to the breast. Furthermore, the negative result of the fermentation test in these two cases points to the alimentary nature of the glycosuria,—that is, to the excretion through the urine of milk-sugar derived from food.

To determine why glycosuria occurs with certain disturbances, the author refers to various views as to changes in milk-sugar during digestion, viz.: That a portion reaches the duodenum unchanged, and there meets a ferment which changes it to galactose (Dastre). A portion under the influence of the bacterium *lactis aërogenes* is changed to lactic acid, carbonic acid, and hydrogen (Escherich). If these changes do not occur and milk-sugar is absorbed as such, some of it may appear in the urine unchanged. To explain glycosuria, the author admits three possibilities: that the ferment was absent, or its action was impeded by pathological bacteria, or that pathological bacteria interfered with the action of the bacterium *lactis aërogenes*. The author raises the question, if a large amount of sugar is given, or if the above pathological conditions exist, is the whole milk-sugar excreted as such, or is part assimilated and the surplus excreted by the urine? He refers to experiments of Worm-Müller and Hofmeister, showing that, after ingestion of large quantities of sugar, a small quantity appeared in the urine, the "assimilation limit" varying with the individual and the sugar. Galactose and milk-sugar appear most readily in urine, leading Hofmeister to think that glycosuria in infants and milk-fed adults is alimentary glycosuria. To determine the "assimilation limit" of infants experiments were made both upon well children and upon those having digestive disturbances. First, the amount of sugar taken in the milk in twenty-four hours was determined for healthy breast-fed children from nineteen to forty-five days old as follows:



Case.	Age in days.	Weight in grammes.		Gain in gram's.	24°. Amount of nourishment.	24°. Amount.	Milk-sugar per kilo of body weight.
		Amount.	Amount.				
I.	19	December 7, 3080	December 8, 3100	20	400	23.64	7.6
II.	20	December 8, 3100	December 9, 3120	20	470	27.77	8.9
III.	24	December 13, 3320	December 14, 3320	0	540	31.91	9.6
IV.	26	December 14, 3350	December 15, 3350	0	510	30.14	8.9
V.	29	December 17, 3450	December 18, 3450	0	520	30.73	8.9
VI.	34	December 22, 3600	December 23, 3600	0	765	45.21	12.5
VII.	40	December 28, 3820	December 29, 3870	50	528	31.20	8.0
VIII.	45	January 3, 4050	January 4, 4150	100	920	50.37	10.6
IX.	32	January 25, 5000	January 26, 5020	20	560	33.09	6.5
X.	34	January 27, 5120	January 28, 5150	30	660	39.00	7.5
XI.	41	February 3, 5450	February 4, 5500	50	530	26.32	4.7
XII.	23	January 31, 3800	February 1, 3800	0	640	37.82	9.9
XIII.	34	February 20, 3270	February 21, 3300	30	570	33.68	10.2

This table shows that nurslings weighing from three thousand and eighty to five thousand one hundred and twenty grammes take in twenty-four hours about eight and six-tenths grammes of sugar per kilo of body weight without excreting sugar or other reducing substance in the urine. Then a known solution of milk-sugar was given between nursings, and the following table shows the result :

Experiments.	Age.	Weight in grammes.	Assimilation Limit.		Remarks.
			In grammes.	In kilo of body weight.	
III.	12 days	3,800	14	3.6	Healthy.
IV.	34 "	5,100	16	3.1	"
V.	15 "	3,500	10	2.0	Dyspeptic.
VI.	34 "	3,850	14	3.6	Healthy.
VII.	23 "	4,050	12	2.9	Dyspeptic.
VIII.	11 "	3,000	8	2.6	Gastro-enteritis (cured)
X.	2½ years	8,050	20	2.4	Healthy.
XI.	6 "	13,900	20	1.4	"
XII.	5½ "	12,700	20	1.5	"
XIV.	5 "	16,600	30	1.8	"

The limit was found to vary from three and one-tenth to three and six-tenths grammes per kilo. Compared with the results of Worm-Müller in adults,—i.e., one and four-tenths grammes per kilo,—the assimilation limit of infants appeared much higher. The reaction lasts in the urine

but a short time, and the milk-sugar solution appeared never to derange digestion.

Conclusions: (1) There is often an increase of reducing substances in infant urine. (2) Minute quantities of carbohydrates are found in the urine. (3) Glycosuria does not occur in healthy breast-fed infants. (4) In cases of digestive disturbance, but especially in gastro-enteritis, there sometimes appears in the urine a strongly-reducing, optically-active substance, giving promptly the qualitative reactions for sugar, but which is not fermentable. (5) This substance is probably milk-sugar or some product or subdivision of it. (6) Glycosuria of breast-fed infants is of alimentary origin. (7) The "assimilation limit" for milk-sugar in nurslings is very high, being in healthy breast-fed babies about three and three-tenths grammes per kilo against one and four-tenths grammes in adults. (8) In cases of even mild digestive disturbance this limit is lowered. (9) Glycosuria in cases of digestive disturbance is due to lowering of the assimilation limit and perhaps to the influence of intestinal bacteria upon the disintegration of sugar.

**Transmission of Intestinal Worms.** (*Revue Mensuelle des Maladies de l'Enfance*, May, 1892, p. 238; *Jahrbuch f. Kinderheilk.*, 1892, Bd. xxxiii. p. 287.) By A. Epstein.

It is generally admitted, since the works of Richter, Kuchenmeister, and Davaine, that the presence of lumbricoids in the intestine is due to direct infection with eggs accompanying food, principally fruits, vegetables, and water. Leuckart advances the opinion that infection is produced by a parasite of meal containing lumbricoid eggs. Experiments by Grassi, Lutz, Leuckart, and others have not given precise results.

Epstein first determined that lumbricoid eggs develop quickest in the stools of diarrhoea, especially when exposed to air, sunlight, warmth, and dampness; more slowly in damp earth and in water. Three children with surgical affections only were used for experiment, precautions against error being taken before giving them the eggs. The stools of all the children in the clinic were examined. Observations were made in the winter when children did not go into the garden. Vegetables and fruit were excluded from the diet, and the water was examined for eggs. Finally examinations of the stools were made every ten days.

Three months later the children began almost simultaneously to pass eggs and soon after worms in the stools, thus demonstrating direct infection with this form of worm. The first evacuation of eggs occurred between the tenth and twelfth weeks. Towards the twelfth week the female measured from twenty to twenty-three centimetres, and the male from thirteen to fifteen. Later, they increased but little in length but became larger.

It is to be added that the first child had no ill effect, the second already feeble had diarrhoea and dyspepsia, and the third was not under continuous observation. A fourth, who had only sterilized cultures of eggs, had no



worms. The above facts explain the greater frequency of these worms in country children. Lumbricoids occurred in forty-three per cent. of three hundred cases, and of these, fifty-two per cent. were in suburban children, and only three and seven-tenths per cent. in children of the city proper.

*Aphtes de Bednar.* (*Revue Mensuelle des Maladies de l'Enfance*, April, 1892, p. 187.) Berlin Medical Society.

Neumann stated that the aphtes de Bednar had been considered as a syphilitic lesion, as ulcerated follicular tumors, or as mechanical lesions, produced by sucking, for example. It has been shown by Fischl that among two hundred infants aphthæ existed in twenty per cent. where the mouth was let alone, and in fifty-one per cent. where a thorough toilette of the mouth was made. Some nurses are very rough in introducing the finger. This explains the left-sided seat of the affection, and also why it should follow certain nurses. Thrush is also sometimes a cause. Treatment consists in avoiding the cause.

Fränkel thought it possible that different affections are confounded together. He spoke of an epidemic near Berlin of aphthæ transmitted from animals to man, both adults and infants, and affecting a quarter of the population. It is yet to be demonstrated if this is the disease of Bednar.

**Tuberculosis in Children. Primary Infection in Bronchial Lymph-Nodes.** (*New York Medical Journal*, 1891, liii. 201; *Archives of Pediatrics*, January, 1892, p. 71.) By Dr. Wm. P. Northrop, of New York.

The object of this paper is to illustrate and strengthen the recently-developed fact that, in the great majority of cases of tuberculosis in children, the seat of primary infection is in the lymph-nodes clustered about the bifurcation of the trachea and the roots of the lungs. Tubercular infection in the tissues of the body means tubercle-bacilli, their presence and products. The all-important source of germ-supply is the dried, pulverized sputum of phthisical patients. The bacillus gains entrance to the body by (1) aspiration through the respiratory tract, (2) ingestion through the intestinal tract, (3) accidental inoculation through abraded surfaces, (4) the placental circulation,—congenital. The sources here mentioned are in the order of their importance and frequency. The first avenue of entrance, the respiratory tract, is almost exclusively the one of interest to us. In speaking of the comparative ages of the tubercular lesions, the discrete miliary tubercles are assumed to be of more recent formation than cheesy masses, and the cheesy masses more recent than the calcareous masses or the shrunken, dense fibrous tissue, or than cavities. From the one hundred and twenty-five cases whose records contain the details suitable for our purpose, thirty-five must be discarded, because the ravages were so extensive that the seat of primary infection was not clear; the bronchial nodes were large and cheesy, likewise the mesenteric, the lungs contained tubercles, so did the liver, spleen, kidneys, and meninges. Twenty cases of general tuberculosis

(that is, cases in which there were tubercles in the lungs and in other organs besides) showed that apparently the oldest lesion was in the respiratory tract. In forty-two cases of general tuberculosis, the only cheesy masses were in the bronchial lymph-nodes. The miliary tubercles involved, besides the lungs, one or more organs of the abdominal cavity or the meninges. In nine cases the tubercles of the body were limited to the bronchial nodes and the lungs, the latter containing only discrete, glassy, miliary bodies, while the bronchial nodes were far advanced in degenerative changes. In thirteen cases there were tubercles in the bronchial nodes only. Most of these patients died of infectious diseases, many of them after a few days' illness, from measles, diphtheria with invasion of the larynx and bronchi, and pneumonia. We have shown that in a vast majority of our cases the oldest lesion was in the respiratory tract, among which cases there was a very significant group of nine in which the bronchial nodes were cheesy, and the only remaining tubercles of the body were in the lungs, and were discrete, glassy miliary bodies, obviously recent. The pointing here is unmistakably to primary node-infection and secondary involvement of the lung. Finally, there were thirteen cases in which the tuberculosis was confined to the bronchial lymph-nodes, there being no other tubercles in the body. As a short statement of the manner of infection in most cases of spontaneous tuberculosis in children, the following may be allowed, especially as it is wholly borne out by authorities. Tubercle-bacilli enter the respiratory passages with the inspired air, lodging in the mucus of the air-passages or the alveoli of the lungs; they may pass through the mucous membrane at any point, be taken into the lymph-spaces, traverse the lymph-canals to the nearest nodes, and be retained. Their subsequent career depends upon the power of the tissues to withstand their tendency to grow and reproduce the lesion in which they were bred.

According to this power of resistance, they will die or remain inactive for a long period, or will develop nodes known as scrofulous (on the authority of Wyssokowicz), or may lead on, when the powers of resistance are depressed, to such changes as have been detailed in the paper.

**Pernicious Anæmia.** (*Revue Mensuelle des Maladies de l'Enfance*, April, 1892, p. 188.) Styrian Medical Society.

Escherich reported the case of a child of four years and two months who had otorrhœa and intestinal hemorrhage. Anæmia closely followed vaccination. The pallor of the skin and mucous membrane was striking. There was no organic affection, no hypertrophy of the spleen, and nothing abnormal in the urine. The stools were without bile. There were buzzing in the ears and psychical excitement. Examination of the blood showed diminution of hæmatites below a million, notable difference in color and dimension of the red corpuscles, leucocytes not more numerous than normal. Proportion of hæmoglobin varied between ten and fifteen per cent. The usual medicines were employed and also transfusion, which relieved the subjective symptoms



but not the others. The child died. Hereditary syphilis may have been the cause of the condition.

Haberman stated that in pernicious anæmia, hemorrhage into the tympanum may explain the phenomena of hearing.

## SURGERY.

IN CHARGE OF B. FARQUHAR CURTIS, M.D.,

Surgeon to St. Luke's Hospital and to the New York Cancer Hospital.

The Pathology of Cancer. (Ueber das Carcinom. *Deutsche Zeitschr. f. Chirurgie*, xxxiv., 1892, p. 132.) By Dr. C. Karg.

Ueber den Parasitismus in Krebsgeschwülsten, etc. (Review in *Centralblatt f. Chirurgie*, 1892, p. 402.) By V. V. Podwysotszki and J. G. Ssowtschenko (Russian).

Zur Entwicklungsgeschichte des Hautkrebses. (*Archiv f. klin. Chirurgie*, xliii., 1892, Hefte 3 und 4, p. 255.) By Dr. K. Schuchardt.

The jubilee of Prof. Thiersch has awakened interest in the histological details of epithelial growths. We have preferred to study these three papers together, but they are so full of important details that the reader must go to the originals to gain any real knowledge of them.

Karg lays stress chiefly upon a very careful study of Paget's disease of the nipple, founded, however, upon only one case (with later recurrence), and comes to the conclusion that the psorosperms described by Wickham and Darrier are only the nuclei of peculiarly growing large epithelial cells, the protoplasm of the cell having become transparent and forming the clear zone which was said to envelop the parasite. The two other forms of so-called parasites described by them are to be demonstrated in other carcinomata, although they could not be found in this case of Paget's disease. Karg concludes that they are beginning epithelial "cell-nests" or "pearls." Russell's "fuchsine-bodies" Karg identifies with collections of leucocytes and of their remains. The micro-photographs accompanying his paper deserve particular notice—they are so clear and well-defined.

Clinically, Karg brings out two points of great interest, one of which is the difficulty which arises in making a diagnosis from a small fragment removed before operation, owing to the varying structure of different parts of the same tumor, and especially to the liability of error caused by the specimen including one of the epithelial "cell-nests" which often form about tuberculosis or lupus or even near an irritated chronic ulcer of the leg. The other refers to the permanent cure of cancer, and he relates several cases where recurrences at distant points took place years after extirpation of the original tumor, the site of operation remaining healthy,—for instance, resection of the pylorus, health for five years, death from cancer

of liver, stomach healthy; carcinoma of lower lip and a gland at angle of jaw, for twelve years healthy, then recurrence in front of the ear.

Podwysotszki and Ssowtschenko, on the other hand, are convinced of the existence of the parasitic protozoa in epithelial growths, and claim to have traced the life-history of such forms from the half-moon or sickle-shaped embryos which leave the mother-cyst and develop in the epithelial cells into round or oval amœboid bodies, which become cystic and produce the embryos again. The parasites cause no inflammatory reaction in the cells or tissues, nor do the containing cells show any sign of degeneration, although some of them indicate by their increased mitosis a beginning irritation. The authors appear to be less inclined to regard the parasites as the cause of the tumor than to consider them responsible for its rapid growth.

Schuchardt analyzes the modern theories of the origin of epithelial growths, showing how Thiersch's theory that they must spring from epithelial cells still holds its own largely (modified, certainly, to accommodate it to the newer views of embryonic development), in spite of the fact that some authorities are once more turning to the views of Virchow, and claiming that they can originate also from connective-tissue cells. In speaking of the early stages of epithelioma he emphasizes the discovery made by him that not merely the epithelium but all the tissues of the skin, the connective tissue as well, show hypertrophic changes, and that later the overgrowth of epithelial cells outruns and overshadows that of the other tissues.

**Stricture of the Intestine due to Tuberculosis.** (Die stricturirende Tuberculose des Darmes und ihre Behandlung. *Deutsche Zeitschr. für Chirurgie*, 1892, xxxiv., 62.) By Professor F. König.

König reports five cases of stricture of the intestine due to cicatricial contraction of tuberculous ulceration, all treated by laparotomy and resection of the gut with circular suture. Two died; one from exhaustion, the other from the giving way of a suture and peritonitis. He considers this condition more frequent and more easily recognized than has hitherto been thought. The diagnosis is to be made by the peculiar chronic history of frequent attacks of severe colic, with constipation, distention of the abdomen, visible peristalsis, and peculiar splashing and musical sounds, ending with a sound which resembles that of fluid driven forcibly from a syringe. There are usually no symptoms before those of stenosis appear. The disease is more frequently found in persons between twenty and thirty years of age, and especially in those suffering from other tuberculous lesions. It causes great emaciation and anæmia. In spite of the feebleness of the patients, König thinks surgical interference advisable, especially as the ulceration is probably still progressing in front of the cicatricial contraction, and often the tuberculous disease elsewhere is not yet far advanced. It seems to the reviewer that the operation is rather formidable to be undertaken in such feeble subjects, and that a lateral anastomosis would answer the purpose



quite as well and with much less risk, while if the general health improved to such an extent as to warrant it, the resection could be performed later.

1. Angioma of Cerebrum; Extirpation; Recovery. 2. Bullet removed from Lateral Ventricle; Recovery. (*Revue de Chirurgie*, 1892, p. 412.) By Poirier.

Poirier reported two cases of great interest at the recent French Congress of Surgeons. 1. A man, thirty-four years of age, had suffered for nine years from epileptiform attacks, and for three years from severe headaches. Exposing the brain at the fissure of Rolando he found a soft tumor, which later microscopic examination proved to be angioma. Removal was followed by recovery, which continues, seven months after the operation.

2. A man, seventeen years of age, shot himself in the right temple. Coma, contracture, Jacksonian epilepsy, and Cheyne-Stokes respiration being present, Poirier suspected an intraventricular hemorrhage, and trephined, and then penetrating into the left ventricle with his finger he felt a hard body, which he removed with forceps, and found it to be the ball. Suture without drainage; recovery.

The Treatment of Fractures of the Femur and Humerus at the Barmen Hospital. (*Die Behandlung der Oberschenkel und Oberarmbrüche im Barmen Krankenhause. Archiv für klin. Chirurgie*, xliii., 1892, Hefte iii. und iv., p. 91.) By Dr. L. Heusner.

The treatment of fractures of the femur at the hospital at Barmen is carried on as far as possible with the patient going about in a splint on which the pelvis rests, and which reaches below the foot, the injured limb hanging and making extension by its own weight. It was hoped that this method of treatment would lessen the mortality of this injury in old persons, but out of seven cases so treated over sixty years of age, three died, so that the improvement is not noticeable. The method has been tried in thirty-one cases with better results, it is claimed, than the usual weight extension.

Heusner has applied similar principles to the treatment of fractures of the humerus, which he treats still more radically, advocating dispensing with splints and apparatus altogether for most of the cases. For fractures at or near the neck, he simply lets the arm hang straight down, after thorough correction of the deformity. The patient goes about as he likes, and at night lets the arm lie in an extended position beside him in the bed. If the hand swells greatly, or the dependent position causes pain, especially in the shoulder, the patient is allowed to hold the arm bent at the elbow, resting the forearm in the lap, or even in a small sling, for short periods of time. He reports cases so treated in which good movement was possible in nine days, and in three weeks recovery was complete. In fractures of the shaft of the bone he supports it with short side splints, which do not limit motion

in the shoulder and elbow. Fracture of the lower end he treats in a similar way without apparatus, except a one- or two-pound weight secured to the hand. He suggests as an improvement in cases in which flexion of the elbow seems to be required to keep the fragments in position, a weight attached to one end of a wire, the other end of which is bent at a right angle to the first and secured to the forearm, so that the weight hanging directly below the elbow acts on the wire as a lever, and holds the elbow flexed. This last apparatus has not yet been tried in practice.

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## GENITO-URINARY SURGERY.

IN CHARGE OF WILLIAM K. OTIS, M.D.,

New York.

**Endoscopy by External Illumination; Endoscopy by Internal Illumination.** (De l'endoscopie à lumière externe; de l'endoscopie à lumière interne. *Ann. d. mal. d. org. Genito-Urin.*, June, 1892.) By Bousseau du Rocher.

This author considers that the necessary conditions to be fulfilled by a useful endoscope with external illumination are:

1. That the projected beam should be a clear light, concentrated on one point, which point is the mucous membrane to be examined.
2. That the rays should be rendered parallel to avoid reflection from the walls of the endoscopic tube.
3. That the illuminating rays should be in the direct axis of vision, consequently in the axis of the tube.

He does not consider that these conditions are fulfilled by any of the German instruments now in vogue. In order to comply with all these conditions he has constructed an endoscope which consists of a small metal tube closed at one end and having a convex lens at the other. Immediately behind this lens are two small electric lamps, placed in such a manner that the two horseshoe films form a circle. Through the axis of this instrument is an aperture; the instrument being suspended from a head-band in such a manner as to bring this aperture directly in front of the eyes as in the ordinary head-mirror; the instrument being operated in the same way, or may be attached to a handle and held in front of the opening of the endoscopic tube.

Following the lead of Nitze, Du Rocher has adapted to his rather cumbersome instrument, the megaloscope, an exceedingly ingenious electro-cautery snare, by means of which small pediculated tumors might be removed from the bladder without danger of hemorrhage, which, as he remarks, complicates the operation of Nitze. (Clever as these instruments are, it is quite safe to say that their use will always be extremely limited, even in the most skilful hands, and that the cystoscope is, and always will remain, practically an instrument for diagnosis alone.)



A Report on the Complete Abandonment of the Operation for Removing Entire Calculi from the Bladder, at the Civil Hospital, Hyderabad, Sindh. (*British Medical Journal*, June 11, 1892.)

Surgeon-Major J. Forbes Keith, who has the extraordinary record of having operated for stone during the past three years no less than seven hundred and thirty-nine times, has completely abandoned operations for the removal of the stone entire, using in every instance some form of "litholatripsy," or, as he would term it, "lithotritlapaxy." Whenever the stone is capable of being grasped by a lithotrite which will pass through the urethra, he crushes it by this route, using a smaller instrument for the fragments, which he crushes very fine. He also uses no wash-bottle, leaving the expulsion of fragments entirely to the expulsive power of the bladder, filling it by means of an ordinary syringe. He uses the following method:

At the other end from the eye of the evacuating catheter, and on its opposite side, another opening is made close up at its mouth, similar to the eye or like the hole of a flute, which can be closed by the finger or thumb, as may be found convenient. This evacuating catheter is then attached to one end of a long piece of india-rubber tubing, which, by its other end, is connected with a little pipe or tube which issues from the bottom of an old kerosene-oil tin case partially filled with boracic-acid lotion of the proper strength. This simple apparatus forms a complete substitute for the aspirator in urethral lithotripsy. When the stone is crushed and ready for evacuation the catheter is oiled and introduced into the bladder, an assistant in the mean time pinching the india-rubber tubing between his finger and thumb to keep the water from flowing out of the catheter while it is being introduced. When the catheter is in the bladder the operator closes the flute-like opening with his thumb or forefinger, and the assistant simultaneously sets the india-rubber tubing free. Fluid flows into the bladder for a short period, and then stops of itself, as can be easily seen by a glass indicator which is attached to the apparatus. Directly the fluid stops, the operator, with a simultaneous movement, opens the flute-like eye in the catheter and pinches the india-rubber tubing. Fluid and *débris* issue with violence sometimes, always with sufficient force, from the flute-like opening.

When the stone is too large to be crushed by any instrument which will pass through the urethra, a perineal section is performed, and the stone crushed through this route by a short, strong lithotrite, somewhat after the methods of Dolbeau and Harrison.

The advantages of the operation may be briefly enumerated as follows:

1. Non-interference with the structures and functions of the bladder and prostate. This can be proved by demonstration. After the operation is completed, and the *débris* evacuated with the large perineal catheter, introduce the nozzle of a syringe (= a No. 16 catheter) through the wound and empty its contents into the bladder; then on withdrawal of the syringe no fluid escapes. But if now the smallest evacuating catheter can be introduced, the bladder will immediately empty itself through the catheter.

2. Smallness of the wound and no important structures cut.
3. No hemorrhage to speak of.
4. The scientific accuracy with which the operation can be performed.
5. Urine, as a general rule, passes entirely or almost entirely by the urethra instead of through the wound, and it is always a voluntary act.
6. The bedclothes are kept dry.
7. Speedy recovery.
8. No danger of fistulous openings.
9. Absence of shock, unless the patient be old and weak and with a large stone.
10. Non-interference with the sexual powers, as might be inferred.
11. Mortality comparatively favorable, — two deaths in seventy-six operations, or two and six-tenths per cent.

In cases where very large stones which cannot be grasped by the lithotrite are present, they may be seized by strong forceps and broken by means of a chisel and hammer through the perineal route.

**Remarks on Evacuation of Débris after Lithotritry.** (*London Lancet*, July 2, 1892.)

In commenting on the method of Surgeon-Major Forbes Keith, of removing the fragments after lithotritry without the aid of an aspirator, Mr. Reginald Harrison calls attention to a method sometimes pursued by M. Guyon, of Paris, in which the stone is reduced by means of repeated crushings to a fine powder, and the bladder washed out by means of an ordinary syringe through a catheter, the washings being continued until the fluid returns perfectly clear and free from any trace of *débris*. In this and similar methods the following points are noticeable :

1. The use of the lithotrite to produce this effect was necessarily more prolonged than where mere fragments is the object. This, with the patient under an anæsthetic, is a matter of no importance so long as the lithotrite is carefully used.
2. The less frequent introduction of lithotrites and evacuating catheters along the urethra. This is a point of some little importance where the prostate is large and the deep urethra irregular.
3. The back action of the suction apparatus, by means of which fragments of the stone often become impacted in the sacculæ and lacunæ which are found in bladders complicated with enlarged and irregular prostates, is done away with. The force of a syringe is probably less than that of the back action of a strong rubber bag compressed by the hand. Further, impalpable wet powder is substituted for irregular fragments of stone. The latter, by their nature, are not only more liable to become impacted in depressions within the bladder-wall, but, by their movements under the force of the aspirator, to wound the mucous membrane.
4. With the syringe, there is no chance of fragments once withdrawn being washed back by any return-current into the bladder.



## ORTHOPÆDICS.

IN CHARGE OF REGINALD H. SAYRE, M.D.,

Assistant to the Chair of Orthopædic Surgery, Bellevue Hospital Medical College, New York.

A New Apparatus for the Treatment of Scoliosis. (Ein Neuer Apparat zur Behandlung der Skoliose. *Deutsche Medicinische Wochenschrift*, March 24, 1892.) Von Dr. M. Schede.

The apparatus is made of gas-pipe, and consists of a frame with an upright high enough to support a pulley over which runs a rope attached to the ordinary head swing. The end of the rope terminates in a chain, which is made fast to a catch when the patient has been sufficiently stretched. There is a second independent bar which the hands grasp while the arms are extended over the head. The patient stands on the toes and thus the spine is stretched as much as practicable.

A pair of padded wooden blocks are fastened in front and back of the pelvis to hold it stationary. This frame passes around the body just below the anterior superior spines of the ilium. Higher up there is a ring of gas-pipe fastened to the large frame, and supplied with movable pulleys and padded rests. This gas-pipe ring encircles the body. In order to untwist the spine, a piece of adhesive plaster, fifteen to twenty centimetres wide and terminating in a ring, is fastened to the convexity of the ribs beginning very near the spine, and passing towards the front under the axilla. Another piece of plaster is put on the projecting ribs of the other side, in front, passing backward under the opposite arm.

To the rings in these plasters cords are attached, which pass over pulleys fastened on the encircling ring of gas-pipe, and to the ends of these cords weights of two or more pounds are attached. The pulleys are so placed that the cord from the ring is horizontal, and pulls a little inside of a sagittal tangent to the curve of the ribs. To keep the upper part of the body from rotation under the influence of the force applied by means of the plasters and pulley-weights, the shoulders are held by an iron brace that runs up from the encircling gas-pipe ring to grasp the axilla. Padded cushions are also placed against the most projecting parts of the ribs in front and back, to aid the plaster tractors in changing the direction of the prominence. These make pressure by means of long screws which run from the gas-pipe ring, and care must be taken that they push *away* from the spinal column, and do not make direct lateral pressure, or else their tendency would be to increase the deformity.

If, as usually exists, there is a second curve in the spine with a fulness of the lower ribs on the side opposite the upper dorsal convexity, then other adhesive-plaster strips are put on this second convexity running around this side of the body in the direction opposite to the plasters just mentioned. The tendency of these second plasters is to twist the lower part of the back in the direction opposite to that in which the upper part is

twisted, and is supplemented by more padded cushions, which press against the projecting parts of the lower trunk in a similar way to the pads mentioned earlier as applied to the thorax.

The principle undoubtedly is correct,—stretching the body as far as practicable to straighten it, and then, while the shoulders and hips are held in position, untwisting the rotated vertebræ as far as possible by force applied to the ribs. The application of adhesive plaster to the sides of the chest with pulleys and weights more closely simulates the action of the hands than the apparatus of Bradford and Hoffa, which combine the other essentials of Schede's machine with this exception. Manipulation has been of undoubted service, and experience may show that it can be well supplemented by this mechanical aid to untwisting the spinal column which is the vital point to be gained in treating scoliosis.

**Principles in the Treatment of Contractures of the Knee-Joint with Portative Apparatus giving Gradual Traction.** (Grundsätze in der Behandlung von Kniegelenkscontracturen mit portativen, allmählich streckenden Apparaten. *Zeitschrift für Orthopädische Chirurgie*, 1. Band, 4. Heft.) Von Dr. Egbert Braatz.

This is a most interesting article, giving an elaborate description of the principles on which the author's knee-joint splint is constructed, and which he first used in a cruder form in 1883. The gliding motion of the tibia on the femur was well described in 1836 by the brothers Weber, and by Hermann von Meyer in 1853. The latter showed that the curve of the condyle of the femur in the posterior half of the knee-joint was  $120^\circ$  on a radius of 5, while in the front half of the joint the curve was  $40^\circ$  on

FIG. 1.

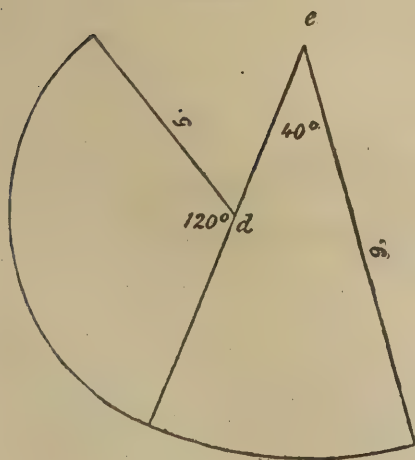
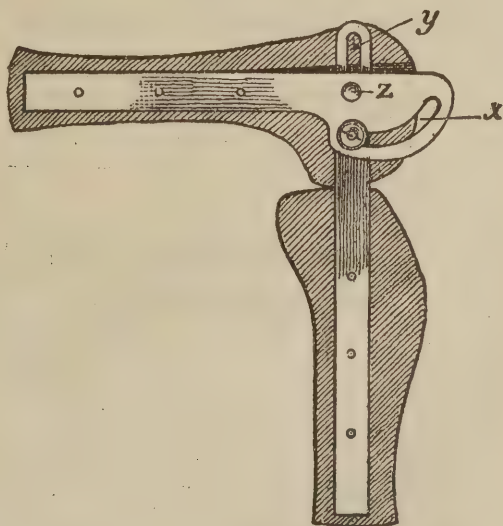


FIG. 2.



a radius of 9; the tibia also having two axes around which it revolves instead of one. (See Fig. 1.)

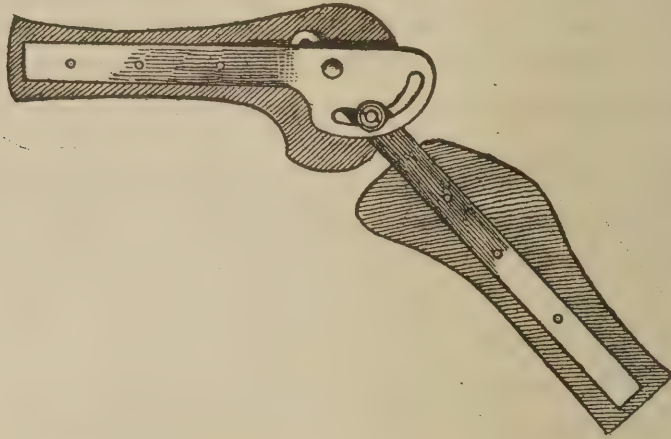
In spite of the well-known construction of the knee-joint, many splints designed to overcome flexion have been made on the hinge principle, and,



therefore, as was shown many years ago, inflict injury on the joint in the efforts that are made to straighten it.

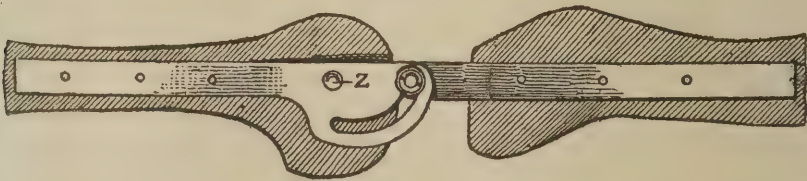
Braatz's instrument has a joint constructed to follow quite closely the theoretical outline of the condyle of the femur, but the axis is placed rather higher up than the lower axis of rotation in Meyer's sketch (*d*, Fig. 1), in order to make more traction on the joint when the tibia is extended on the femur. The lower end of the femoral part of the joint consists of a broad plate in which a slit (*x*, Fig. 2) is cut on the curve described by

FIG. 3.



Meyer. A pin (*z*, Fig. 2) is set in this plate a few millimetres higher than the lower axis of Meyer should be placed. The tibial part of the joint consists of a flat strip having a long slit (*y*, Fig. 2) running in its long axis, in which the axis pin (*z*, Fig. 2) of the femoral part rests. A pin on the tibial part plays in the curved slit of the femoral piece, and thus, when the femoral part is firmly fastened to the thigh, and the tibial part to the leg, and when the latter is extended on the former, the head of the tibia is drawn away from the femur more and more as the leg approaches complete extension. (See Figs. 2, 3, and 4.)

FIG. 4.



The splint is fastened to the leg by an anklet going above the malleoli, which is lashed to a foot-plate, while counter-extension above is obtained by a ring passing under the tuberosity of the ischium, the whole being strapped around both leg and thigh to retain the splint in position.

## OBSTETRICS AND GYNÆCOLOGY.

IN CHARGE OF JOHN M. KEATING, M.D., LL.D.,

Colorado Springs, Colorado; Fellow of College of Physicians of Philadelphia; Gynæcologist (Emeritus) to St. Agnes's Hospital, Philadelphia; formerly Visiting Obstetrician to the Philadelphia Hospital (Blockley); Editor "Cyclopædia of the Diseases of Children," etc.

**Lysol, a New Antiseptic.** (*Archives of Gynæcology*, May, 1892.)—Dr. Eric Vondergolz, in describing this new preparation, says: Lysol is obtained by dissolving in fat and saponifying, with the aid of alcohol, the fraction of tar-oil which boils between 190° and 200° C. It is a brown, oily-looking, clear liquid, with a feebly creosote-like odor. It contains fifty per cent. of creosote. It forms a clear mixture at once, in every proportion and at all temperatures, with water. It possesses the properties of a saponaceous solution in addition to its germicidal power. While as valuable as bichloride of mercury, it is without any toxic property,—a point to be considered when it is used in cavities, and especially in gynæcology and obstetrics. In the latter, and especially in emergency cases, lysol is of the highest value.

Ligatures (silk) are prepared by boiling for three hours in a five-per-cent. solution of lysol, and can be kept in a two-per-cent. alcoholic solution of the same until needed. Instruments are washed with a brush in a hot alkaline solution, then with a brush in a hot five-per-cent. solution of lysol, and placed in a hot one-half-per-cent. solution until used. The hands and forearms of the operator and of his assistants are rubbed with pure lysol, and then washed with a brush in a one-per-cent. hot solution. In this solution the hands or instruments are always dipped if soiled in any way during the operation. The field of operation is prepared by scrubbing it with a five-per-cent. solution. The gauze is prepared by boiling for three hours in a five-per-cent. solution and drying in an oven. This gauze is also used instead of sponges.

The writer was first convinced of the highly antiseptic properties of this drug by having used it in irrigating a malodorous inoperable cervical carcinoma, the peculiar characteristic odor entirely disappearing. At no time could any irritation of the tissues be observed, although some highly sensitive persons feel a slight burning sensation for about ten minutes after using this drug.

**The Ultimate Results of Operations for Removal of the Uterus or its Appendages.** (*Archives of Gynæcology*, May, 1892.)—Dr. Lewis S. Pilcher, after reviewing the literature of the subject, says: The accepted indications which are admitted by most if not all surgeons to justify the removal of the uterus or its appendages are as follows:

Extirpation of the uterus is indicated:

1. In cases of inveterate and intractable prolapse.
2. In cases of intractable inversion.
3. In certain cases of myoma, in which, despite the energetic and intel-



ligent use of other measures, the tumor continues to grow and causes serious disability or suffering from the effects of pressure, or provokes persistent serious hemorrhages, or undergoes cystic degeneration, or develops serious septic conditions.

4. In cases of malignant disease of the uterus, as long as the disease remains limited to the uterus itself. Many eminent surgeons limit this last indication for hysterectomy to those cases where the body of the uterus is invaded, and perform a high amputation of the cervix when that portion only is involved.

5. Possibly in cases of suppurating pelvic peritonitis, in which the uterus and the appendages are blended together in a mass of adhesions that cannot safely be separated when reached through an abdominal incision, and in which the removal of the uterus by *morcellement* through the vagina (the method of Péan and Segond) gives abundant access to multiple foci of suppuration and insures subsequent drainage.

Removal of the appendages is indicated :

1. For ovarian neoplasms.
2. For uterine myomata, attended with serious menorrhagia.
3. For chronic and intractable inflammation of the ovary and tube, attended with pain and disability.
4. For suppurative inflammation of the Fallopian tube, with retention of septic products within the distended tube.
5. For marked nervous disturbances provoked by each recurrence of menstruation.

Employment of Hydrastinin in Uterine Hemorrhages. (*Archives of Gynæcology*, May, 1892.)—Dr. Emanuel reports the use of hydrastinin hydrochlorate in forty-eight cases in Czempin's clinic in Berlin, three-eighths of a grain being given in gelatin capsules three or four times a day after the hemorrhage had begun, with the following results: twenty-six of the forty-eight were so influenced by the remedy that the bleeding ceased in the succeeding twenty-four to thirty-six hours, a result which has not been obtained by any other known remedies. Hydrastinin seems to act on the small vessels of the mucosa, whereas ergot exerts its influence upon the smooth muscular fibre. Hence the former does not take the place of ergot in *post-partum* hemorrhages or hemorrhages after abortion. No disagreeable symptoms were observed from the employment of hydrastinin.

The Treatment of a Congested Os Uteri. (*Archives of Gynæcology*, May, 1892.)—Pure glycerin applied to a congested and engorged os uteri and to the cervix will cause depletion of the engorged vessels and relieve the engorgement. Its action is enhanced if a grain of atropine is added to two fluidounces of glycerin, and, besides, the pain is much relieved. Many erosions, ulcers, and fungoid growths on the os and cervix can be well treated in this way.

## OPHTHALMOLOGY AND OTOTOLOGY.

IN CHARGE OF J. E. HARPER, A.M., M.D.,  
Chicago, Illinois.

**Two Cases of Vacuoles of the Lens.**—In the *Virginia Medical Monthly*, June, 1892, Dr. John Dunn reports the case of a man of twenty-four, who had a partly clouded lens, L.E., which contained numerous small "bubbles" of various sizes. The bubbles began just behind the anterior capsule and were scattered throughout the lens, but were not arranged regularly. Vision: perception of light and outlines of large objects. The second case was in a woman of forty-one. Exactly in the centre of the right lens was a vacuole or bubble about the size of a pin-head and perfectly round. Luminous objects viewed with this eye were surrounded with thousands of rays of light which proceeded from the flame as a centre. Tension was normal and vision with correcting glasses  $\frac{1}{8}$ .

**Topical Treatment of Parenchymatous Keratitis and Corneal Opacities with Mercurial Ointment.**—J. Mitvalsky, M.D. (*Merck's Bulletin*, May, 1892), writes of the treatment of parenchymatous keratitis and corneal opacities with a diluted mercurial ointment. The formula he uses is:

Mercurial ointment (33 per cent.), 1 part;  
Vaseline, 2 parts;  
Lanolin, 1 part.

He finds the greatest amount of good result from the use of the ointment in parenchymatous keratitis in the very first stages of infiltration. The application of the ointment causes a prompt absorption of the products of infiltration in most cases without a typical vascular stage developing. If there is much pericorneal injection, brow-ache, or photophobia, the ointment is contra-indicated. Good results are obtained only when the inflammation is unaccompanied by irritation or very mild symptoms of ciliary irritation. When the inflammatory process is declining the ointment is valuable. In clearing up old corneal opacities he regards the ointment as superior to any agent we possess.

**Vaccine Blepharitis.**—Dr. Charles Zimmermann (*Archives of Ophthalmology*, April, 1892) reports a case of vaccine blepharitis in a boy of twelve who was inoculated by sleeping with his younger sister on whose arm there was a typical vaccine pustule. There was considerable constitutional disturbance. Cold applications were made and his eyes irrigated frequently with chlorine water. Slight ptosis of right upper lid resulted. Vision after recovery was  $\frac{2}{8}$ .

**Hereditary Sarcoma of the Eyeball.** (*London Lancet*, May 21, 1892.)—Mr. Silcock reports an instance of hereditary sarcoma of the eyeball in



three generations. He showed a melanotic sarcoma of the eyeball of a woman, aged twenty, who was admitted to Moorfield's Eye Hospital in October, 1890. The growth sprang from the left half of the choroid coat of the left eye, and filled rather more than half the vitreous. The growth was of mixed spindle and round cells, and started in the outer part of the choroid. Her mother had been afflicted with an ocular tumor, similar in structure and site. She had become blind while pregnant with her sixth child, and the globe was excised after the birth of the seventh, which was the case recorded above. The mother's sister died, aged forty, of tumor of the breast, and she lost one eye before death. A twin-sister lost an eye after a confinement, and her grandfather lost an eye from an inflammatory affection. This was probably an instance of hereditarily increased vulnerability of the tissues of the eyeball.

**Blindness following Puerperal Septic Embolism.**—Dr. Grant Cullimore (*Omaha Clinic*, May, 1892) relates the history of the case of a woman in which puerperal septicæmia set in three days after delivery. The eyes were much swollen. Alternate chills and fever, night-sweats, and delirium continued for three months. Milk was suppressed. When swelling subsided, total blindness existed, and there were hemorrhagic spots in the conjunctivæ over the sclerotics. Four and a half months later the eyes were receding, tension lowered decidedly, irides swollen, and pressed forward by swollen and opaque lenses; response to light feeble. Eyes were painful to touch and there was great conjunctival irritation. A diagnosis of metastatic uveitis, the result of puerperal septic embolism, was made. Patient was treated with kali iodid. 10 gr. t. i. d. and inunctions of oleat. hydrarg. 10 per cent. on forehead and temples, but without benefit.

**A Rare Case of Symmetrical Changes at the Maculæ Luteæ in an Infant.**—Dr. E. C. Kingdon (*London Lancet*, May 14, 1892) reports the following: The patient, aged eight months, was born at the full term, and appeared healthy until three months old; then gradually increasing weakness of the muscles of the trunk and limbs set in, so that when seen he was unable to sit up or turn over in bed. The muscles felt flabby, but the body was well nourished. The child was apathetic, rarely cried, and the expression of the face suggested mental enfeeblement. There was no sign of disease in the thorax or abdomen; no history of any previous illness, nor of rickets or syphilis. The father and mother were not related, and were healthy people with good family histories. Their first child had died when two years of age with similar symptoms. At the yellow-spot region in each eye, covering a space nearly twice the size of the optic papilla, there was seen a whitish-gray patch, somewhat oval in shape (the axis being horizontal), with softened edges; a few retinal vessels coursed over its periphery. In the centre of the patch the fovea centralis appeared as a dark cherry-red spot. In addition there was commencing

optic atrophy. The changes in the two eyes were identical. The child remained under constant observation for four months, when it died somewhat suddenly. During that time its general condition had not altered. The appearances at the maculæ luteæ persisted unchanged, but the optic atrophy had increased. Microscopic examination of the brain after death revealed marked changes in the pyramidal cells of the cortex; they were altered in shape, being mostly round or oval. The cell protoplasm was vacuolated, and formed an irregular shrunken mass around the nucleus. Sections of the spinal cord revealed "descending degeneration."

**Action of Tuberculin in Experimental Tuberculosis of the Eye of Rabbits.**—In the *American Journal of Ophthalmology* Prof. Devenitz reports the results of his experiments with tuberculin in the experimental tuberculosis of the eye of rabbits. He arrives at the following conclusions:

1. The tuberculin is a sure curative agent for the experimental tuberculosis of the eye of the rabbit.

2. The tuberculin shows its curative affect only after the tubercle can be demonstrated.

3. The first effect of the tuberculin is a transient but severe irritation of the eye.

4. Under the continuous action of the tuberculin all irritation of the eye subsides.

5. When, before beginning treatment, deep-reaching destructive processes have not occurred, a cure consists in retention of the visual functions of the eye, otherwise atrophy results.

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## DISEASES OF THE LARYNX, NOSE, AND SURROUNDING STRUCTURES.

IN CHARGE OF J. PAYSON CLARK, M.D.,

Physician to the Throat Department of the Boston Dispensary; Assistant Physician for Diseases of the Throat, Massachusetts General Hospital.

**Electrolysis in the Upper Air-Passages.** (*Deutsche Medicinische Wochenschrift*, May 5, 1892.)—Dr. L. Grünwald has treated seventy-four cases by this means. He has never used more than twelve cells of a simple battery, and the current strength is never over fifteen milliamperes by the galvanometer. In chronic pharyngitis a double platinum needle was inserted into the swollen irritable spots, and a current of from ten to fifteen milliamperes used for from ten to sixty seconds, generally without previous cocaineizing.

The reaction is generally very slight, and there is usually no pain. In extensive affections the needle is applied to several places at one sitting. One sitting is usually enough to remove the annoying symptoms. The writer considers this method far superior to acids or the galvano-cautery.



In chronic nasal obstruction the current strength is from five to fifteen milliampères, used for one-half to five minutes. The pain is considerable, but cocaine does not affect it, and is not used. The pain is generally well borne. From one to five applications generally suffice. The action is principally to destroy sensitive nerve-ends, diminishing abnormal irritability. Electrolysis in tuberculosis of the larynx was not very successful.

The Frequency of Double Latent Empyema of the Antra of Highmore, and the Necessity of Methodical Washing out of these Cavities in Nasal Blennorrhœa. (*Prag. Med. Wochenschr.*, April 13 and 20, 1892.)—Dr. L. Lichtwitz says the only constant symptom of this condition is an excessive micro-purulent secretion from one or, if both antra are affected, both sides of the nose. This is also a symptom of disease in other sinuses. The failure of translucency is not a very valuable diagnostic point. In one case of double empyema the author found one side translucent before the pus was removed, and the other not translucent, even after its removal.

The author's means of positive diagnosis is by syringing out the antra in any suspicious case. He makes an opening in the lower nasal space with a fine trocar. He has operated thus one hundred and eleven times, with a positive result forty-three times. The number of patients in whom a positive result was obtained was thirty-one, twelve of the cases being double empyema. Puncturing is generally easy, and only slightly painful. In four cases the writer was unable to pierce the wall. The puncture causes no bad results if no pus is found. The double cases are more likely to have arisen from some nasal affection than from the teeth. Only two of these twelve cases are cured; seven, still under treatment, are much improved. Of the other three, one could not decide on operation, one has not returned, and one died of heart-disease.

Adenoid Vegetations in Deaf Mutes. (*Rev. de Laryngol., d' Otol., et de Rhinol.*, May 1, 1892.)—Dr. Ladislas Wroblewski has examined the nose and naso-pharynx in one hundred and sixty deaf mutes, ninety-two boys and sixty-eight girls. Adenoids were more or less pronounced in ninety-two (fifty-seven and a half per cent.). The usual proportion in children seems to be about seven per cent. Ten times the vegetations filled the whole nasopharyngeal space. The vegetations were pendent in twenty-three cases. Pieces of different size, sometimes on the vault, sometimes on the posterior pharyngeal wall, in thirteen cases. Knob-formed, dilated, of various size, resembling cutaneous warts, in six cases. In fifty cases the vegetations were flattened. The seat of adenoids is most frequently the vault, then the posterior wall, more rarely the lateral walls. Rarely they arise from only one of these places, generally from two or more. In deaf mutes the lateral walls are relatively more often the seat of vegetations. Hypertrophy of the tonsils was one of the most frequent complications (fifty-two cases,—twenty-nine boys and twenty-three girls). Chronic catarrh of the nasal mucous membrane

occurred in twenty-nine cases, hypertrophic rhinitis in twenty-five cases, and polypoid degeneration in six cases. Granular pharyngitis occurred sixteen times, chronic pharyngitis fifteen.

**Treatment of Tonsillar Hypertrophy.** (*Boston Med. and Surg. Journ.*, May 12, 1892.)—Dr. Jonathan Wright found recorded in the surgeon-general's office, in twenty-five years, thirty-one cases of serious hemorrhage after tonsillotomy. Two were in children,—one a hæmatophile, and one from an abnormal course of the internal carotid. In nine the age was not given. Twenty were eighteen years old or over. Children can therefore be ruled out. The writer would exclude tonsillotomy in all patients over eighteen, although he never saw a case of excessive tonsillar hemorrhage. The surface of a tonsil is no safe criterion of the deeper tissues. Galvano-cauterization with the loop—if it can be adjusted, otherwise with the point—is the alternative for the cutting operation. Seven to ten sittings are usually required to reduce the tonsils by galvano-puncture. Astringent or antiseptic gargles are used afterwards, principally for pharyngeal gymnastics. The writer believes it best in children with enlarged tonsils and adenoids at the vault to remove the tonsils first, without ether, and to wait a few weeks, or even months, before operating in the naso-pharynx, with the expectation that the latter may retrograde. When the adenoids are well developed a subsequent operation will, of course, be necessary.

**Malignant Disease of the Tonsils.** (*Am. Journ. of the Med. Sciences*, May, 1892.)—Dr. David Newman believes that malignant disease of the tonsils is more frequent than would be supposed from the number of cases reported, the reason being that little attention has been given to the subject. So long as the belief exists that the tonsils are seldom attacked by malignant disease, it is liable to be overlooked in its earlier stages by the general practitioner. In carcinomatous disease of the tonsil the glands become quickly infected, while sarcoma, especially the spindle-celled, may remain encapsulated for a considerable time. The round-celled or lympho-sarcoma, the most common variety, is most malignant, and there is little hope of saving the patient even from the onset. Sarcoma does not slough as quickly as acute carcinoma, but maintains a consistent form longer. When ulceration does occur the tumor spreads very rapidly. Epithelioma comes next in the order of frequency. Fibro-sarcoma and adeno-sarcoma are less frequently seen. Many cases, through failure of an early diagnosis, are seen too late for operative interference, and only palliative remedies can be recommended. Here follows a discussion of the two methods of operation practised (through the mouth and by external incision) and the different procedures which may be employed in each method, with their advantages or disadvantages.

The writer has seen ten cases of malignant disease of the tonsils in seven years, and gives a detailed report of them. In one hundred and forty-four cases collected by the writer, in only fifty-six was operation attempted, the



disease being too far advanced in the other cases. Early diagnosis is difficult. In doubtful cases a piece should be removed and examined microscopically. There are two considerations which justify operation: 1. The chance of complete removal. 2. The probable prolongation of life and alleviation of suffering. There are six cases on record in which cancerous disease did not recur locally after operation. Two of these died later of cancer elsewhere. Palliatives are spoken of for various symptoms as they arise.

## DERMATOLOGY.

IN CHARGE OF J. J. PRINGLE, M.B. (EDIN.), F.R.C.P. (LOND.),

Physician to the Department for Diseases of the Skin in the Middlesex Hospital, London.

**The Pathology and Pathogenesis of Lichen Scrofulosorum.**<sup>1</sup>—Dr. Jacobi, of Freiberg, opened a discussion upon this interesting subject. Fully accepting the classical description of the disease originally given by Helva and Kaposi, he expressed astonishment at the doubts regarding its nature and symptomatology recently declared by Besnier in his annotations upon the last French edition of Kaposi's hand-book.

He briefly referred to two cases recently under his observation. The first of these was a woman suffering from lupus of the scalp, and tuberculosis of various glands, who had two distinct attacks of lichen scrofulosorum, both of which occurred when her general condition was below par. Ultimately, under purely constitutional treatment, the eruption disappeared without leaving any trace of its existence.

In the second case the eruption was most marked on the extensor surfaces of the limbs, and difficulties in diagnosis might have arisen but for the lesions on the abdomen, which showed all the gradations of the rash, the presence of tuberculosis of the axillary glands, and, subsequently, the evidence of tubercular invasion of the pulmonary apices. Here again the rash completely disappeared after several months' duration, under general treatment, but incidentally the value of weak chrysarobin ointment in the affection was noted.

Typical lesions were excised from the skin of the abdomen of both cases, and submitted to rigorous microscopical and bacteriological investigation. Jacobi confirms the observations of Kaposi that the hair-follicles, the sebaceous glands connected with them, and the immediately adjacent tissue are the seats of the affection. The resemblance of the sections to miliary tubercle was striking, the lesions being well defined and consisting of round, epithelioid, and giant cells in varying proportions. The superficial position of the giant cells close to the hair-follicles and in the apices

<sup>1</sup>Verhandlungen der Deutsch. Dermatol. Gesellschaft, Dritter Congress, September, 1891, Ergänzungshefte zum Archiv für Derm. u. Syph., 1892.

of the papillæ was noticeable. No caseous degeneration was observed. After many futile attempts Jacobi succeeded in staining, by Sabbet's method, three rod-like bodies, which he considered to be tubercle-bacilli. Inoculation experiments upon rabbits and guinea-pigs yielded negative results; no cultivation experiments were made.

In conclusion he urges the acceptance of lichen scrofulosorum as a clinical entity: "a disease which is well defined, which occurs exclusively in persons suffering from tuberculosis (generally of lymph-glands), and generally exhibiting the so-called scrofulous habit; that the outbreak of the skin affection often coincides with an aggravation of the tubercular lesions, while it usually disappears with improvement in the general condition or in the original tubercular affections; let us add that microscopically the single efflorescences exhibit the picture of miliary tuberculosis, and that bacilli are present—albeit in very small numbers—which in size, form, and characteristic staining reaction resemble tubercle-bacilli; the supposition, then, seems an extremely probable one that we must consider lichen scrofulosorum as a form of tuberculosis of the skin, although with some limitations."

The negative results of inoculation are probably due to the weakened virus, while the superficial position of the lesions further contributes towards the occurrence of complete recovery without cicatrization.

At a recent meeting of the Société Française de Dermatologie et de Syphiligraphie<sup>1</sup> (April 21, 1892), M. Hallopeau made an important communication relative to a case of lichen scrofulosorum in a child previously exhibited. Complete recovery had taken place under a course of cod-liver oil and arsenic. Inoculation experiments again yielded negative results, the guinea-pigs utilized for them unfortunately having died a few days after being inoculated. The careful microscopic researches of M. Davier confirmed in the main the observations of Jacobi; he reports "in the papules of this lichen a special perifolliculitis characterized by the presence of a neoplastic tissue of tubercular appearance."

**Inflammatory Affections of the Sweat-Glands.**—This subject, though not, strictly speaking, a recent one, has been long neglected. Attention to it has been prominently attracted by an excellent article by Dr. S. Politzer, of New York, on a disease which he terms *hydradenitis destruens suppurativa*.<sup>2</sup> This title, although obviously a clumsy one for clinical purposes, appears to us on the whole to be accurately descriptive of the pathology of the disease, and therefore may, for the present at all events, be retained.

The patient was a man, aged twenty years, who enjoyed good general health and had never suffered from acne. The eruption, which was of four months' duration, was limited to the face and neck; about twenty lesions in

<sup>1</sup> Annales de Dermatologie et de Syphiligraphie, tome iii., Numéro supplémentaire, Mai, 1892.

<sup>2</sup> Journal of Cutaneous and Genito-Urinary Diseases, January, 1892.



different stages of development were present on the sides of the cheeks, the chin, the region below the jaws, the front and the sides of the neck and the shoulders at the root of the neck. The first lesions were small, hard, round, or oval, noduled in the subcutaneous tissue, which felt like bird-shot. These enlarged gradually, and at the end of from ten to fourteen days attained the size of a pea and projected from the general skin level. The little tumors reddened and desquamated. The overlying skin became adherent, and in the course of a few days the centre of the tumors became soft, yellowish, and some drops of pus, mingled with a little blood and shreds of tissue, were discharged through the broken epidermis by one or more minute openings. If undisturbed a crust fell off in a few days and the dark-red-denied skin under it remained pigmented for many weeks, a slightly depressed sore ultimately marking the previous sites of the lesions. Crops of these, numbering from one to half a dozen at a time, appeared at irregular intervals of a few days to several weeks. A few of these primary lesions coalesced to form composite ones, while others remained in an abortive state for many months. In no case were the hairs loosened, and from the resulting cicatrices the hairs grew normally, showing that the destruction of tissue did not involve the hair-follicles.

In arriving at a diagnosis the following diseases were considered and differentiated,—furuncle, trichophytia barbæ, syphilis, acne, acne cachecticorum, and what the author—as we think very inappropriately—calls brom-acne.

The treatment resorted to, for which no special efficacy is claimed, comprised depilation with a sulphide of barium mixture in preference to shaving and the covering of the tumors with mercurial carbolic acid plaster mull, while suppurating lesions were incised with the usual antiseptic precautions.

Two tumors were excised, and their histological characters were as follows: They consisted of a dense aggregation of small round epithelial cells, arranged in groups of ten or fifteen, and large multinuclear masses resembling giant cells. These latter were considered to be the degenerated and broken-up fragments of sweat-gland epithelia, and weighty reasons are adduced in favor of this statement, which is admirably worked out.

In a review of the limited literature of the subject the author identifies the nature of his cases with the *hydrosadenite et abscessus sudoripares* of Verneuil, and signalizes the almost complete silence of modern text-books regarding it. He considers the *acnitis* of Barthélemy and the *folliculitis exulcerans* of Lukasiewicz as probably identical with hydradenitis.

Writing on the same theme Dr. William Dubreuil,<sup>1</sup> of Bordeaux, points out that, although Brocq gives an excellent clinical sketch of the affection in his *Traitement des Maladies de la Peau* under the title of Dis-

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<sup>1</sup> Annales de Dermatologie et de Syphiligraphie, tome iii., Numéro supplémentaire, Mai, 1892, p. 482.

seminated Folliculitis of Hairless Parts, his anatomical description is very imperfect. He reports in detail the case of a young woman, aged twenty, who had suffered from the affection since the age of seven years. The first lesions appeared on the hands and feet; they afterwards became generalized, finally appearing upon the face. The course of the eruptive elements appears to have been very similar to that in Pollitzer's case, although much more severe. Microscopic examination of four *early* nodules left no doubt as to their origin in the sweat-glands, the interstitial tissue of which was infiltrated with embryonic cells. The lining epithelial cells multiplied rapidly, obliterating the lumen of the ducts, and finally all trace of normal gland disappeared. In some sections in which the sebaceous glands were suppurating it was clear that this occurred only by extension from subjacent sweat-glands.

Dubreuilt agrees with Pollitzer in considering the *acnitis* and *folliculitis* of Barthélemy as forms of hydradenitis, and also the case recently described by Bronson and Fordyce as an *acne varioliformis*, in which conclusions, after a careful study of their literature, we heartily concur.

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## HYGIENE AND BACTERIOLOGY.

IN CHARGE OF A. C. ABBOTT, M.D.,

First Assistant in the Laboratory of Hygiene, University of Pennsylvania.

The Technique and Value of Sputum Examination. (*Medical News*, May 14, 1892.) By Veranus A. Moore, B.S., M.D.

The primary qualifications of the method to be chosen may be said to be those that will enable the examiner—

1. To discover the presence of tubercle-bacilli when they are present in very small numbers, as in the beginning of the invasion, as well as in larger numbers in more advanced stages of the disease.

2. To preserve the sputum without decomposition until examined, so that the examination need not be neglected on account of a necessary delay in its execution.

3. To determine, especially in the beginning of the disease, as approximately as possible the extent of the invasion, as indicated by the number of tubercle-bacilli present.

As already stated, cover-glass preparations, made directly from the sputum and stained according to some well-established method, give very satisfactory results in nearly all of the more advanced cases. It is in the earlier stages of the disease that other methods are desired for preparing the sputum.

After describing and discussing the more common methods employed in these examinations the author continues as follows in regard to his own work:



In my experiments a paper cup, about one-third of an inch in diameter and from one-half inch to one inch long and perforated with pinholes, was made. This was filled with fresh sputum and placed immediately in alcohol (first seventy, later ninety-five per cent.). After it had been in the alcohol for a few days it was embedded in paraffin by the usual method, the paper being removed after the infiltration and just prior to the embedding. By this means a cylinder of sputum about one-third of an inch in diameter was secured. Very thin sections were easily cut, fastened to cover-glasses, and subsequently treated as sections of animal tissue. Owing to their fragility, care must be exercised in fastening the sections to the cover-glass or slide, or portions will become detached during the staining process. Sections stained after Gabbet's process showed the tubercle-bacilli very beautifully, lying singly or in clumps between the cell-elements. In the sections examined, the bacilli were usually found in aggregations of small clumps. Sputum hardened in alcohol showed the tubercle-bacilli much better than when Müller's fluid was used, although the latter exhibited the cell-elements more distinctly. The degenerated alveolar cells (Buhl's cells) are brought out more clearly when a little picric acid is added to the alcohol. This method, however, requires too much time to be practicable when the examination is made for its aid in diagnosis only, but for the study of the histologic elements of the sputum it offers many desirable features.

*Conclusions.*—1. In all cases of bronchial or lung disturbances (not due to a known disease) that do not yield readily to treatment ordinarily successful, the sputum should be examined for tubercle-bacilli.

2. If tubercle-bacilli are not found in properly-stained cover-glass preparations made directly from the sputum, Biedert's method or some modification of it should be employed to concentrate the bacilli in a large quantity of the sputum.

3. Several specimens of sputum should be thoroughly examined in all suspected cases before a negative conclusion is reached. In all such cases an examination should be made from time to time, in order to detect the possible invasion of the bacilli at a later date.

4. In making the examination, fresh sputum should be employed, if possible. If a long delay is necessary, the sputum can be preserved in a two-per-cent. potash solution or in alcohol, as previously described.

*Disinfection of Apartments.* (Zur Desinfection von Wohnungen. *Archiv für Hygiene*, Bd. xiii., Heft 3, p. 294.) By Cranberg.

Cranberg directed his attention to the best means of ridding carpets, walls, tapestries, etc., of infectious matters that might have been deposited upon them. To this end different sorts of carpets and walls, both painted and otherwise covered, were infected with *staphylococcus pyogenes aureus* and with fresh tuberculous sputum. After drying the infected paint was rubbed or wiped down with sponge, chamois-skin, rubber, or bread. After this bacteriological studies of the points thus freed from infection were made.

By this method sponge was seen to be the best agent for employment in these cases. The sponge should be slightly moistened before using.

With white-washed walls the safest treatment is to give them a fresh coat of the wash.

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## PATHOLOGY.

IN CHARGE OF ALLEN J. SMITH, A.M., M.D.,

Professor of Pathology in the Medical Department of the University of Texas, Galveston, Texas.

**Chemical Pathology of Diphtheria.** (*British Medical Journal* and *London Lancet*, March 26, April 2, April 9, 1892.)—Sydney Martin, as Goulstonian lecturer, considers at length the results of personal investigations into the chemical products of the bacillus of diphtheria in the tissues, especially as compared with those of anthrax, infectious endocarditis, and tetanus. In normal peptic digestion there are formed from pepsin, —syntonin, hetero-, proto-, and deutero-albumose, and peptone; from trypsin,—a globulin-like body, a tryptone (peptone), leucin, tyrosin, and a bitter substance. In a previous series of experiments upon the products of the anthrax bacillus in the tissues, the author determined the presence, as the result of fermentation, of hetero-, proto-, and deutero-albumose, peptone, leucin, tyrosin, and an alkaloid (base). From a series of six cases of diphtheria, representing the convalescence as well as the mild and severe forms of the active affection, a series of albumoses, indistinguishable from those of the anthrax or peptic digestion by chemical means, and an organic acid were obtained. From the blood and spleen of a case of ulcerative endocarditis were obtained similar albumoses (proto- and deutero-albumose, mostly the latter), quite indistinguishable, chemically, from the albumoses of the diseases mentioned, and an extractive material of a highly acid reaction. From the blood of a case of tetanus, again, two classes of substances, albumoses (mostly deutero-albumose), and an alcoholic extractive, which has not as yet been definitely determined as to its exact nature, have been obtained. Upon injecting the products mentioned into different animals, a decided physiological difference may be recognized between these various albumoses, although little or no chemical difference can be made out in their analysis. In the case of the anthrax products, the albumoses show a marked febrigenic tendency, while the alkaloidal body is a coma-producer. When the albumoses from diphtheritic digestion are subcutaneously injected, a local cedema of rapid development, unaccompanied by any naked-eye congestion, and not followed by any necrosis, results; while only an irregularity of the temperature, not a well-marked rise as from anthrax or ordinary peptic albumoses, may be demonstrated. When thrown directly into the blood the effect upon the temperature is quite variable, in some animals producing fever, in others an actual depression of the temperature;



whatever the effect upon the temperature, however, a general muscular paresis, usually more marked in some one part of the body than in the others, follows at a variable interval of time, and persists for a long while. There is no especial muscular atrophy with or after the paresis, but, as a rule, the body-weight falls, and a watery diarrhoea, varying with the intensity of the toxæmia, is also a symptom in these animals. The most notable feature exhibited *post mortem* by the animals experimented upon was the failure of the blood to coagulate, even after as much as ten days after the administration of the albumoses. This persistence in the failure of the blood to coagulate, and the appearance of palsies even after the disappearance of the active disease in human pathology, the author compares as having definite mutual relations. The palsies are apparently the result of degenerative changes in the motor nerves from the direct action of the albumoses; similar changes are also met in the sensory and sympathetic nerves. On injecting into the circulation a watery solution of the organic acid slight febrile disturbances are aroused, and fatty changes are induced in the muscles and nerves, but to a less degree than from the injection of the albumoses. The toxic elements found in the membrane differ practically only in their relative amounts from those obtained from the blood and spleen, and when injected into experiment animals produce the same symptoms and post-mortem changes. From these observations and a similar series practised with artificial cultures of *bacillus diphtheriæ*, Martin decides that the primary infective agent is this micro-organism; that this liberated in the false membrane forms a ferment, which, when absorbed, digests the proteids of the body, forming albumoses and an organic acid. These digested products are the agents in producing fever, the depression and paralysis which follow diphtheria, and death. The albumoses derived from the blood and spleen of cases of infectious endocarditis are febrigenic, and retard the coagulation of the blood; they are not nearly so toxic as those from anthrax, have a less marked and somewhat different power of producing fever, and do not cause palsies. Less disturbance of the nutritive processes is induced by these substances, although some wasting may follow. In a case of tetanus a single injection into a rabbit was practised; this was followed by depression of temperature, which soon became normal, however, and a progressive emaciation until death on the twenty-first day of the experiment.

These experiments are of the utmost value in the study of the acute infectious diseases, separating from the mechanical symptoms an important group due to toxic chemical substances. Further, an additional element of differentiation between the various pathogenic micro-organisms is thus adduced, and a most attractive field for the study of the actions of infectious agencies, their products, symptoms, and immunity is opened.

Primary Carcinoma of the Pancreas with Multiple Carcinosis. The Organisms of Cancer. (*Johns Hopkins Hospital Bulletin*, May, 1892.)—Under this title Flexner devotes a lengthy paper to the post-mor-

tem examination of a case of cancer of the tail of the pancreas, with extension along the lymphatics into the left and thence into the right pleura, and with extension along the blood-paths into the liver, kidneys, and right adrenal. He was able to demonstrate the appearances which have been regarded by some as evidence of parasiticism in these tumors, and describes the included (psorospermoid) bodies very much as does Steinhaus. He also calls particular attention to the fibrilloid connection sometimes visible between the included bodies and the including epithelial cells, regarding it as an evidence of a former intimate connection, as does Steinhaus (*vide* this department, March, 1892). Following this line of argument, the author agrees with this authority that these supposed parasites are but degenerated central epithelial cells, of certain groups of cells which in their retrograde change have shrunk away from their fellows, thus giving rise to the appearance of lying in vacuolations.

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## CLIMATOLOGY.

IN CHARGE OF GUY HINSDALE, M.D.,

Lecturer on Climatology in the University of Pennsylvania, Philadelphia.

**The Health-Resorts of the Riviera.** (*New York Medical Record*, April 2, 30, and May 28, 1892.)

A series of letters appears treating of Cannes, St. Raphael, Frejus, Grasse, Beaulieu, and the new resorts Juan-les-Pins and Antibes. The observations on climate, particularly the winds of the Riviera, and the botanical, hygienic, and social notes, are attractively presented. Dr. Frankland, of London, has recently proposed a plan by which English winter climatic resorts may be artificially provided with some of the efficiency of the resorts of the Riviera or of Davos. The plan would be applicable wherever the coasts have a southern aspect seaward and a somewhat abrupt elevation. "To the north of the grounds attached to the dwellings," he says, "let a wall twenty or thirty feet high be built, stretching round eastward and westward, and let it be whitewashed on the southern side to reflect the sun's rays." With the reflection from the sea and the artificial reflection "there would be created," he thinks, "whenever the sun shone in winter, a climate of the same character as that of Davos, in the Engadine,—that is to say, powerful sun warmth with a cold and bracing air."

**Fifteenth Annual Report of the Sanitarium Association of Philadelphia.**—During June, July, and August, 1891, the admissions to the sanitarium amounted to over one hundred and twenty-eight thousand, of which twenty-six thousand were adults. Two steamers make hourly trips from Philadelphia to Red Bank, a distance of ten miles down the Delaware River.

While primarily a day sanitarium, there is a hospital department where



patients and care-takers may be accommodated for a longer period, and over eight hundred admissions are reported. The river ride of an hour's duration, the refreshing breezes, the absence of dust and odors, the spacious, well-shaded grounds, hammocks, swings, retired groves for the sick, tender nursing and care, good food, pure water for drinking and for bathing, and unlimited milk are a godsend to these children and their mothers. The establishment and growth of this sanitarium have without doubt influenced the marked falling off in the death-rate among children in Philadelphia during recent years.

MORTALITY OF CHILDREN UNDER FIVE YEARS OF AGE, IN PHILADELPHIA, FROM 1871 TO 1891 INCLUSIVE.

(Stillborn not included.)

Years.	Total Admissions to Sanitarium	Deaths Under Five Years.	Percentage of Deaths to Population.	Percentage of Deaths to Total Mortality.	Total Mortality.
1871 . . . . .	. . .	6,262	.88	40.43	15,485
1872 . . . . .	. . .	8,320	1.13	43.82	18,987
1873 . . . . .	. . .	6,260	.83	41.11	15,224
1874 . . . . .	. . .	6,231	.80	40.89	15,238
1875 . . . . .	. . .	7,371	.92	41.39	17,805
1876 . . . . .	. . .	7,632	.92	40.39	18,892
1877 . . . . .	. . .	6,417	.75	40.09	16,004
1878 . . . . .	. . .	5,985	.68	38.01	15,743
1879 . . . . .	32,845	5,524	.61	35.70	15,473
1880 . . . . .	30,256	6,594	.77	38.53	17,111
1881 . . . . .	39,677	7,124	.82	36.50	19,515
1882 . . . . .	46,124	7,254	.81	36.16	20,059
1883 . . . . .	49,001	7,417	.81	37.07	20,006
1884 . . . . .	57,904	7,606	.80	38.08	19,999
1885 . . . . .	53,969	8,188	.86	38.27	21,392
1886 . . . . .	52,866	7,351	.75	36.74	20,065
1887 . . . . .	70,933	8,421	.85	38.77	21,719
1888 . . . . .	95,608	7,268	.72	35.67	20,372
1889 . . . . .	103,516	7,752	.74	37.74	20,536
1890 . . . . .	85,580	7,912	.75	36.40	21,733
1891 . . . . .	128,174	8,479	.79	36.28	23,367

**The Baths of Helwán.**—Dr. Frederick Peterson (*New York Medical Journal*, June 25, 1892) describes the Baths of Helwán, in Egypt, believed to be the oldest health-resort in the world. There are about a dozen springs having a temperature of from 77° to 86° F., sulphurous, chalybeate, and saline. The bath-houses are commodious and luxurious. In Egypt is found the type of the warm and dry climate of low altitude. In winter the temperature by day is from seventy to seventy-five degrees in the shade; the nights are fresh and cold and often accompanied by heavy dew. The mean annual humidity is about fifty-eight per cent. The average annual rainfall for the last five years is 1.22 inches. The pyramids and mounds of ancient Memphis are in plain view across the desert, while Cairo, fifteen miles to the north, affords inexhaustible resources to the pleasure-seeker.

## REVIEW OF ITALIAN, SPANISH, AND PORTUGUESE MEDICINE.

IN CHARGE OF A. M. FERNANDEZ DE YBARRA, M.D.,

Corresponding Member of the Medico-Chirurgical Academy of Madrid, Spain, the Argentine Medical Circle of Buenos Ayres, South America, and the Society for Clinical Studies, of Havana, Cuba.

**Progressive Unilateral Paralysis of almost the Entire Half of the Cerebral Nerves.** (*Gazzetta medica di Torino*, February 11, 1892.)—Dr. E. Mensi makes a summary of the rare cases of this aggregate of symptoms that have been reported up to the present time, and then gives the history of a woman, thirty-three years old, probably not syphilitic. For two or three years she suffered attacks of vertigo and buzzing in the ears. In March, 1888, she had severe pain in the head, located in the frontoparietal and cervical portions, on the left side; horizontal diplopia; signs of pulmonary tuberculosis. At the time Dr. Mensi examined the patient her intelligence was unaffected; she complained of headache on the right side, a little in front of the ear, and had a facial paralysis on the same side complicating the veil of the palate; there was a slight anæsthesia of all the right side of the face and neck (both skin and mucous membrane), accompanied by pain on pressure at the points of exit of the branches of the trigeminus, dryness of the right eye and right side of the mouth; myosis; marked loss of the sense of taste, of smell, and impaired hearing of the right ear. The patient had from one hundred to one hundred and twenty respirations per minute, in spite of her normal temperature. Basing his opinion on the absence of the reflexes, the complication of all the cerebral nerves (except the motor oculi communis and some branches of the trigeminus), the persistence of pain notwithstanding the anæsthesia, and the limitation of the affection to only one side of the body, the author made the diagnosis of tuberculous pachymeningitis circumscribed to the right half of the posterior and median cranial fossæ. Either by compression or by diffusion of the inflammatory process the cranial nerves produce this aggregate of symptoms.

**A Contribution to the Clinical Knowledge of Intestinal Occlusion.** (*Rivista veneta di scienze mediche*, January, 1892.)—Dr. P. Bonazzi gives a report of two very interesting cases of this complication. The first was that of a woman, fifty-nine years old, in whom the use of the corset had brought about the complete division of the right lobe of the liver, the inferior portion, nearly six centimetres in length, being united to that organ merely by a band of fibrous tissue, and pushed upward. The gall-bladder was united to the moving fragment and fixed to the colon by adhesions of peritoneum. In consequence of these lesions the transverse colon was drawn up, and the traction thus exerted had induced a twisting of the intestines and an obstruction of the intra-intestinal circulation; the accumulation of fæces and gas beyond that fold had completed the occlusion:



this is a unique case, and undoubtedly the first observation of the kind reported. The second case was that of a man, fifty-nine years old also, suffering from a volvulus of the sigmoid flexure of the colon, caused by the twisting of its own mesentery (sigmoid mesocolon). This volvulus was due to the extraordinary length of the sigmoid flexure, which was four times the usual size, the large intestine in its entirety measuring 2.83 metres, that is, 1.18 metres longer than normal. It was a case of congenital abnormal development of the large intestine, or perhaps of a mesenteric peritonitis, during foetal life. The intestinal circulation in such cases is carried on without difficulty during infancy and childhood, but in old age the diminution in the energy of the peristaltic movements of the intestines causes a stagnation of the fecal matter in the vicinity of the sigmoid flexure, and the twisting of this part of the intestinal canal takes place with great facility.

**Temporary Dysphonia produced by a Tumor of the Neck.** (*Archivos internacionales de Rinología, Laringología y Otología*, No. 14, 1892.)—Dr. Pergens speaks about a young man of sixteen years of age, employed on a farm, and having a tumor on the superior part of the right side of the neck. Each time he exposed himself to a current of air he lost his voice, and then felt a constriction in the throat. There was only a distention of the skin on the right side of the neck, extending from the angle of the inferior maxilla to about two centimetres of the mental process. The laryngoscopic examination showed nothing abnormal. During an attack of aphonia naught could be distinguished on the outside of the neck, but in the larynx the left vocal cord only was to be seen, the right one being concealed by a round swelling covered by normal mucous membrane. After a short time of rest the patient regained his voice. Dr. Pergens removed the hypertrophied submaxillary gland and adjacent ganglia, after which operation the aphonia did not return. Probably the temporary dysphonia was produced by chilling of the diseased glands.

**Contributions to the Etiology of Beriberi.** (*União Medica*, Rio Janeiro, March, 1892.)—Dr. Agapito da Veiga investigates the pathogeny of beriberi, endeavoring to discover whether it is caused by a vegetable or an animal parasite. He found that confined spaces, dark and damp, like cellars, houses with wet walls or deficient drainage, and all such dwellings where cryptogamic vegetation flourishes, are the favorite places for the development of beriberi. On board deep vessels, where light and air have little access to the bottom, cases of this disease appear, as it happens in the Brazilian navy, where it is very difficult to get rid of the infection. The author thus explains the prevalence of beriberi in the Brazilian island of Das Cobras. He makes a distinction, however, between the conditions that favor the development of paludal poison and those causing beriberi.

# FORENSIC MEDICINE.

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IN CHARGE OF LORENZO D. BULETTE,  
Of the Philadelphia Bar.

## *A CASE OF ALLEGED OBSTETRICAL MALPRACTICE.*

THE frequency of actions for damages against obstetricians, for injuries caused by their alleged unskilfulness and incompetency in failing to diagnose pregnancy, has led to numerous inquiries by practitioners as to the extent of their legal duties and liabilities, and the nature and degree of protection the law affords them under such circumstances.

A full and satisfactory answer to these inquiries appears in a case<sup>1</sup> in which a physician, who was called to treat a patient suffering from a uterine tumor, failed, during successful operative treatment for the tumor, to detect the patient's pregnant condition, and thus caused her to be delivered of a dead foetus.

The complaint alleged unskilfulness and negligence, which was denied in the defendant's answer. The cause was tried by a jury, who returned a verdict for the patient in the sum of one thousand dollars; but the judgment entered thereon was, on appeal to the Supreme Court, reversed, with directions to dismiss the complaint. The facts and history of the case as they appear in the testimony given at the trial, together with the comments thereon of Chief-Justice Thayer, who delivered the opinion of the Supreme Court, must prove of such interest and value to the medical practitioner as to justify a full presentation of them.

The precise point determined was that, when a physician is called to treat a special case of sickness or infirmity, a liability cannot be established against him in consequence of his failure to learn the peculiar condition of the patient in another respect, unless the evidence clearly shows that he does not possess such a reasonable degree of learning and skill as is requisite for the practice of his profession, or that he did not exercise his best judgment, and ordinary care and diligence, to discover whether such condition existed or not; and especially will there be no liability where, as in this case, it appeared that there was good reason for believing that such condition did not exist, and that the physician applied all the tests known to medical science, which could be employed under the circumstances of the case, to ascertain such fact, and was unable to detect it.

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<sup>1</sup> Langford *vs.* Jones, 18 Or. 309.



It appeared that on November 22, 1887, the plaintiff, a married woman, the wife of Langford, applied to the defendant for medical treatment; that she had given birth to three children, two of whom were then living; and that she had also had two miscarriages. It also appeared that she had been suffering more or less for a long time from an affection of the womb; that the neck of it had been lacerated in giving birth to her eldest child, a boy, who at the time of her application was about sixteen years of age; that the difficulty had at times occasioned excessive hemorrhage, and been a source of great annoyance and suffering; that some six or seven years prior to her application to the defendant for treatment, she had been treated for some disease of the stomach by Mrs. Dr. A.; that the latter examined her, and testified at the trial that she found a lacerated condition of the neck of the womb, presenting what physicians call a "granulated surface," which looked raw and sore. The witness testified: "I treated that, and found that she had repeated hemorrhages. I do not remember that they occurred except at her regular periods of menstruation. I treated her for that. I do not remember that I gave her any medicine for it, but I do remember that I considered it due to some enlarged condition of the body of the womb, and applied a tincture of iodine on an 'applicator,' and that month she missed her regular flow, and improved very rapidly from not having lost any blood. The next month she had her regular menstrual flow, and considered herself well; and that is the last I ever knew of Mrs. Langford professionally."

Another physician, Mrs. Dr. H., had treated the plaintiff professionally from February, 1887, until April of that year, and had called in consultation Dr. McK. The former testified that the plaintiff came to her office in February, 1887, complaining of frequent irregular profuse hemorrhage, exhaustion, and pain; and that she found, upon a digital examination, a growth on the side of the uterus about the size of a dollar; that the most gentle touch of it gave her pain, and caused great hemorrhage, so much so that it filled the witness's hand and ran down her arm when she made the examination; that she called in counsel, at the request of the patient, to know whether it was a malignant or benign growth, and with a view to an operation; that the patient was twice in her office,—once the last of March, and once about April 8; that they gave her an anæsthetic and removed a small piece of the growth, which was sent to Dr. K. for microscopical examination; that they found one-third of the posterior lip of the uterus, and the anterior also, involved somewhat with that papular mass, dark colored,—a sort of blue, red-bluish, color,—then a lighter, yellowish tint; that she heard the testimony of the defendant and Mrs. Y., and, taking into consideration their testimony on the subject and what she knew personally of the condition of the disease, she was of the opinion that it was cancerous; that she told the plaintiff of the same, and advised an operation as soon as possible; that the plaintiff came to her office, making ready to go East; that it was the great hemorrhage that gave her alarm; that all witness was trying to do was to relieve and check that, so that the patient might go East, and there have

an operation performed; that witness gave that advice to her and her husband.

The testimony of Dr. McK., the consultant with Mrs. Dr. H., fully corroborated the testimony of the latter in regard to the condition of the plaintiff and the extent and severity of her affliction at the time. He testified: "We made a careful examination, and found a large excrescence or growth projecting from the posterior lip of the womb, the surface of which was soft and pliable, readily broken down, and bled at the slightest touch."

This testimony shows the condition of the plaintiff six months prior to her application to the defendant for treatment, and in all human probability the disease had made alarming progress during that time, although she appears to have been inclined to represent her general health as favorably as possible. The tumor, however, was there, still developing, and exhibiting more marked indications that it was of a malignant type.

The plaintiff testified that the defendant, when he examined her, pronounced it a cancer, and said that an operation was necessary, and the sooner performed the better. The defendant himself testified that she looked weak and feeble, was short of breath, complained of pains at the lower part of the abdomen, of tenderness when she stepped down or up quickly, or received a jar or rub; that on coming up-stairs she was easily tired out, and palpitation of the heart ensued; that frequent hemorrhages had occurred, for a year and a half or two years, irregular and profuse, so much so that at times she had fainted from loss of blood; and that she had been in her bed nearly ten days before coming to him for treatment. That upon making a digital examination the following day he found a tumor which came within an inch of the surface, completely filling the cavity of the vagina, but could not determine by touch its attachments; that it filled the whole back part of the vagina to the back, and to her right side; that within a few days thereafter he removed it, and found that it was a large papular outgrowth, springing from the neck of the uterus, and the diseased surface was well marked, portions of it being of a yellowish tint, others more of a yellowish-red or pinkish tint; that it bled profusely by simply introducing the speculum; that it was as large as a good-sized orange,—not round like an orange, but was soft and papular, and adapted itself to the sack or tube; and that in removing it he removed a part of the neck of the uterus.

"Down to this point in the history of the case," says the Supreme Court, "there is no proof whatever, as shown by the testimony, which would authorize a recovery in favor of the patient. There cannot be even a pretence that the defendant, thus far in his treatment of the patient, in any particular neglected his duty. That the patient was seriously ill, there can be no doubt, and her disease was of a character which demanded prompt and skilful attention. It was making progress, and would soon undermine her constitution, if it had not already done so. The removal of the tumor



was skilfully and successfully accomplished, and the parts affected in consequence thereof properly adjusted and treated. Nor can it be maintained that the appellant was guilty of any neglect of duty after the performance of the operation, so far as concerned his ostensible employment. He attended strictly to all the incidental matters, carefully removed the sutures which he had inserted, endeavored to alleviate pain, and diligently observed and assisted the healing process as it advanced. A competent and experienced surgeon so thoroughly appreciates the responsibility of his position that he would hardly be expected, in a critical case, to neglect affairs of vital importance. Besides, those who practise that profession are not devoid of the kindly sympathy for the unfortunate which is possessed by other people, nor of an unselfish desire to relieve human suffering and distress, as many would seem to suppose. They undoubtedly labor under more mental anxiety by far than any other class; and their ambition to maintain a fair fame and reputation are powerful incentives to fidelity in the discharge of such sacred trusts as are committed to their care. I have not the most remote idea that, out of the whole list of names of the prominent physicians called as witnesses upon the trial of this case, one would be found whose constancy to professional duties can justly be suspected, or who, under any consideration, would neglect them, where the consequences would be liable to result seriously. This confidence does not arise from faith in the superior integrity of the medical profession; but there is an innate desire in all mankind for success, approbation, and fame, and, when encouraged by such a training as is usually given in medical schools, it becomes the predominant sentiment of the mind, and very few are so dull or stupid as not to be actuated by its influence, or to believe that it can be realized in any other way than by the exercise of active vigilance and unremitting attention.

“The patient’s counsel did not claim, however, at the hearing, that the defendant was negligent in the respect above alluded to, but insisted that he was negligent in failing to discover the existence of the plaintiff’s pregnancy until after the expulsion of the foetus, and that her condition was evident; also that he negligently and unskilfully probed the uterine cavity with a metal instrument, whereby he ruptured the foetal membrane and tore the placenta, on account of which the foetus died; that he negligently inserted his finger in the uterine cavity, and caused needless pain and suffering, and hastened the death of the foetus; and that he negligently suffered the dead foetus to remain within the respondent’s body, and administered drugs and medicines which retarded delivery after labor pains had commenced. That the appellant failed to discover the pregnancy of the respondent he does not deny; but that her condition in that respect was evident he does deny, and denies, also, all the alleged acts of negligence and unskilfulness above referred to; and he cannot be justly chargeable with any negligence or unskilfulness on account of said matters, unless it is shown that the patient’s condition of pregnancy was so apparent that it could have been detected by

the exercise of reasonable judgment and intelligence and ordinary diligence on his part. Without such showing he is not liable to any such imputation, even though he had done all of said acts.

"The defendant was employed," says the Court, "to treat the patient for a malady of the most alarming character. It was apparently local, but most probably the origin of numerous ailments, and was of such a nature that, unless arrested, her life was but a burden, and its continuance for a brief period could be no more than a miserable existence. Its prolongation would be attended with excruciating pain, suffering, and distress, and necessarily be brought to a speedy close. It was in that condition the appellant found her, and he viewed her case from that stand-point. The question of her pregnancy was only a secondary matter, and his treatment would not have been varied if he had known it, unless he did probe the uterine cavity, as the respondent's counsel allege, but which he emphatically denied under his oath administered to him upon the witness-stand. In view of the character of the respondent's sickness when she applied to the appellant for treatment, what earthly reason could he have had, after learning the history of her case, for surmising that she might be pregnant? The tumor with which she was afflicted had doubtless been developing for a long time. It was of the size of a dollar in the previous April, when Mrs. Dr. H. examined it, and then caused profuse hemorrhage from the slightest touch, and was extremely sensitive. That was more than seven months before her application to the defendant for treatment, in November, and we must presume that during that interval the disease had become more aggravated. Yet it must have been within that period of time that she conceived. How could the defendant have thought or believed that under these circumstances it was possible for her to have been exposed to conception—either that she could have endured sexual intercourse, on her part, or that her husband would have persisted in its indulgence? After the removal of the tumor the defendant had still better grounds for supposing that there was no pregnancy. He had then good reason to believe that, if the respondent were in that condition, the operation would produce a miscarriage; and, as it did not have that result, it was a convincing circumstance, in his mind, that she could not be so. The removal of a tumor from that locality would not necessarily, perhaps, have that effect. But in this case, as I understand, it involved the removal of a part of the neck of the uterus; and in that debilitated condition of the patient, and in view of the extent and complication of her difficulties, it would seem impossible for it to result otherwise. It would certainly be more liable to produce a miscarriage than the digital examination claimed by defendant's counsel to have caused it, or the employment of the small, flexible silver probe to open the orifice to the uterus left by the defendant to permit the discharge of pus or other matter necessary to be expelled.

"It must have been some time after the operation before the respondent herself had any idea that she was pregnant. In her testimony as a witness



in the case, she says, after speaking of the operation: 'He did not dress my wound the next day, but the third day he did, assisted by Mrs. Y.; and he came on then for some ten or twelve days, and then he left, and did not come again, probably, for a week or ten days, and he called to see how I was, and I spoke about my bloated condition at that time, and he thought it was just gas, and to take some simple remedy to throw it off. And I called him back between two and three weeks afterwards; he came back because I was feeling worse, and I called his attention then that I was still worse, and I felt a movement; and it seemed rather singular to me, after such an operation as he said he had performed, that I should be such a figure as I was in fact, for I could scarcely mistake myself; though, of course, under the circumstances, it was impossible to think of such a thing. And he gave me an examination, and said it was nothing but bloat all the time. I told him I was not such a figure before I had the operation, and asked him if I had got to go the rest of my life with such a figure, in rather a light manner, and not knowing what was the trouble.' This was more than a month after the operation was performed, according to the plaintiff's own data, and she then concluded that it was impossible for her to be with child. But about January 27, 1888, she seems to have become convinced in her mind that such was the case, and that she could not be mistaken. She said, in her testimony, 'I told Dr. J——. It was on Friday, and I may be a little mistaken in my date, but I think it was on Friday afternoon, that I first spoke to him about being pregnant, and told my husband also, and he said it was utterly impossible, that it could not be, that it was impossible, after the operation he had performed, for me to be in that condition. And he laughed at the idea first, and then seemed a little startled before he left the house, and examined my abdomen externally, I presume some four or five times; and there was a movement, but he kept saying that it was contraction of the muscles and contraction of the uterus; and every time he would see the movement after that it was "contraction of the uterus and muscles." And I kept telling him that it could not be,—that I knew I was pregnant; and told him, from January 27 until I was delivered of that child, that I was confident I was pregnant, and I never could give up the idea. And he said he could not hear the foetal heart beat himself. He would bring his brother, who was a regular practising physician, on Sunday morning; and he did, and he sounded me and said it was nothing but gas or tympanites.'"

This account of the affair does not differ materially from that given by the defendant himself. It appears, from his testimony, that after the removal of the tumor he attended upon the plaintiff from time to time for little more than a month; that the operation did not restore her to health, but her symptoms were much better, and he discontinued his visits; that he did not see her again until about January 19, at which time she called at his office; that he considered her very much improved, though she was still troubled with heartburn, dyspepsia, and complained of pain in the

lower part of the abdomen. The defendant then renewed his visits, and during this time she experienced a movement indicating pregnancy. Her husband also was convinced in his mind that she was in that condition, and so informed the defendant. The latter, however, seems to have been very sceptical on the point. He felt certain that if she had been so the operation would have produced a miscarriage; he claimed that, from the history of the case given him by the respondent, it was not possible for her to be pregnant. He, however, concluded, in order to satisfy himself thoroughly, that he would make an examination for indications of pregnancy, and have his brother assist him. About February 1, 1888, such an examination was made; they found that the abdomen was exceedingly tender, due, as the defendant claimed, to the disease and to peritonitis, and that she was troubled with tympanites, which caused excessive bloating; in consequence of which, and the tenderness of the abdomen, neither of the tests by percussion or ballottement could be applied, nor were they able to discern the beat of the foetal heart. This examination seemed to confirm the defendant in his belief that no pregnancy existed, and about February 5, following, he proceeded with the operation in which the plaintiff's counsel allege he probed the uterine cavity.

The defendant claimed that the object of that operation was to maintain the opening to the uterus, which he established when he removed the tumor, in order to admit of the discharge therefrom of any matter necessary to pass off. He states that he found the opening partially closed, and that mucus had collected which it was necessary to remove; that to enable him to ascertain the depth of the opening, he used a small silver probe, made of pure silver and flexible, having a smooth point; that by means of it, with a small piece of absorbent cotton, he removed the mucus, but that the probe never entered the uterine cavity; that he called the next day and ascertained that the operation had caused no trouble, but that the respondent still complained of bloating, constipation, inability to retain food, loss of appetite, and when she did eat anything it distressed her; that he continued his visits up to February 25, administering to her simple medicines to alleviate her sufferings; that he did not call again until March 22, following; that a few days previous to that time the respondent had had a loss of fluid and her bowels were more distended; that he again made a digital examination, and found no change in the neck of the uterus; that he called again on March 25, and found that the fluid had about ceased its discharge, but that the respondent was suffering much pain, and he prepared a watery extract of opium to be administered by suppository, one every three hours; that about March 28 the patient was delivered of a dead foetus.

This seems to have been the first incident which had the effect of inducing the defendant to believe that the plaintiff had been pregnant during the continuance of his treatment. He had tested the fluid, and concluded that it was a sort of watery menstruation. She had not for a long time previous had regular menstruation, and he was of the opinion that this watery dis-



charge indicated its return. He testified, in regard to the last operation performed by him, that it occasioned the discharge of only a small quantity of blood. The plaintiff, however, testified that she flowed a long time afterwards,—that is, the greater part of the forenoon,—probably until about three o'clock in the afternoon,—some three hours. "I might have flowed three hours. I know it was some three or four hours afterwards; and then we used a suppository, and it quieted me." And the husband of the plaintiff testified that the defendant "shoved the probe clear in,—way up to his hands. His hands was full of blood,—both his hands was full of blood,—when I gave him the wash-basin to wash him, and the towel." In answer to the question as to what effect the probe had upon the patient in regard to flooding or otherwise, the witness stated, "Why, it made the blood gush right out into the blankets, and the clothes and sponges I had there." The witness further stated that he changed it two or three times; that there was quite a quantity at first: it wet the blankets through, and the towels, and then he had the clothes doubled up afterwards, and he changed them twice before it got down to its regular courses; that he should judge it was a "couple" of hours or so.

"That this," says the Supreme Court, "was a highly exaggerated statement is quite evident upon its face. It is not corroborated by other testimony nor consistent with reason. But, if it were entitled to full credit, it would not establish the two main grounds upon which the action was founded: that the defendant was negligent in failing to discover the pregnancy, or that he destroyed the life of the foetus. The appellant was unfortunate in not discovering that the plaintiff was pregnant, as it was apparent that her whole case was sought to be built upon that circumstance. Still it does not appear that if he had known the fact, his treatment of her would have been different from what it was. It was necessary, as has been suggested, to remove the tumor, whether the plaintiff was pregnant or not; and that the appellant performed the operation skilfully and successfully the evidence shows beyond any question. And it is also shown, it seems to me, by equally as cogent proof, that her sickness was of such a nature as to baffle the skill of a physician to detect the pregnancy by any of the modes known to medical science. Other physicians might have been more successful,—might possibly have exercised better judgment in regard to the matter; but it would not follow that the defendant was liable to damages for malpractice. A liability, in such a case, does not attach as against a doctor, any more than it would against a lawyer who commits an error in the practice of his profession. The law exacts the same requirements and duty from each: that he shall possess a reasonable degree of learning and skill, and exercise it according to his best judgment. It is not a difficult matter to indicate from a retrospective stand-point the proper course to have pursued in regard to affairs, however complicated they may have been. That is very safe ground to occupy, and the would-be wise and sagacious usually has sufficient prudence not to venture upon any other. They know

thoroughly, and can point accurately and decidedly, what course should have been pursued, after the occurrence to which it related has transpired. Nor will they hesitate to exact from the one charged with the duty, and who undertook its performance, with no light save that derived from study and experience, as perfect and complete a compliance therewith as though it were undertaken in the full light of subsequent events. If the conduct of actors in important transactions were to be judged from such a basis, it would never escape criticism and censure, however faithful and efficient it may have been; as there always may be found that some of the minor details of the affair have not been observed with due nicety, or which could not have been obviated or omitted by the adoption of other methods. Hence it would be unjust and unreasonable to attempt to determine the merits or demerits of the mode of performance of a transaction from such a view.

“The plaintiff’s counsel in this case are able to animadvert upon the failure of the defendant to discover the plaintiff’s condition of pregnancy, and to draw inferences therefrom unfavorable to him. They can speciously and eloquently urge, after the development of the affair, that the evidences indicating the result which followed were so unmistakable that any physician could have easily anticipated it; but they are not able now to point out how the defendant, from a prospective view, could have ascertained the fact with any degree of certainty, under the peculiar circumstances attendant upon the plaintiff’s sickness. It is true that the plaintiff and her husband, as she testified, became convinced that such was the case, and so informed the appellant; but it clearly appears from the testimony of both that it was only a matter of conjecture with them. The defendant would not have been justified in acting on that kind of information, which, in effect, was not much beyond a suspicion. What excuse could he have made for suspending his treatment through an apprehension of injury resulting to the foetus, in case there were one, when the consequences of the suspension would necessarily be serious? It was highly important, as any one must know, that the opening, which the defendant left in the uterus for the discharge of matter necessary to pass off, should be maintained. In order to determine in regard to the existence of the pregnancy, the appellant was compelled to rely upon the history of the case, upon his own knowledge of the circumstances and surroundings of the affair, and upon those tests established from observation and experience as indications of it. Time, however, which is the only certain proof of the correctness of any theory, showed that the appellant’s conclusions were wrong in that particular; but that did not prove him guilty of unskilfulness or negligence. He did not undertake in his treatment of the respondent’s case that his judgment was infallible; he only agreed to exercise his best judgment.”

And continuing, the Court says,—

“The claim of the plaintiff’s counsel, that the defendant negligently and unskilfully caused the death of the foetus, is very flimsy, indeed.



There is no testimony upon that point, so far as I can discover, worthy to be dignified by the name of evidence. It is claimed by the said counsel that the appellant entered the uterine cavity with a probe, consisting of a metallic instrument, punctured the sac of water containing the foetus, and destroyed the placenta; but the claim is so absurd, as I view it, that it is hardly entitled to consideration. What proof is there that the little flexible probe which the defendant used in cleaning out the opening he had made in the neck of the uterus, when he removed the tumor, ever entered the uterine cavity at all? L., the husband of the plaintiff, swore in an uncouth and apparently reckless manner that 'he (referring to the defendant) shoved it (the probe) way up to his hands.' If that testimony were entitled to full credit, it would not prove that the probe entered the uterus, or that it punctured the sac of water; and it is evident that it did not do the latter, for if it had the water would have flowed out immediately. The witness seemed desirous of leaving the impression that the defendant performed a brutal operation upon his wife, in which he assisted. The defendant shows how the operation was performed and for what purpose, and the manner in which he used the probe. The claim that the digital examination had affected the foetus so as to destroy its life is absolutely puerile. Any one at all conversant with anatomy must know that such a consequence would be almost physically impossible. The placenta could hardly be disturbed by such an examination, nor the sac of water containing the foetus be thereby broken. That the foetus would have died, under the circumstances of the plaintiff's condition, if no examination had been had after the removal of the tumor, is morally certain. It could not be expected to mature in the condition of the plaintiff's health. She evidently was afflicted with chronic peritonitis, superinduced by a cancerous diathesis which involved the uterus. Her efforts to disguise her deep-seated malady were true to womanly instincts, but it was too unmistakable to be hidden. The long-continued pain in the abdomen, the constant sufferings, and her enfeebled appearance betrayed an infirmity which no innocent dissimulation could conceal.

"The respondent's counsel claim that there was sufficient evidence of the defendant's negligence and unskilfulness in his treatment of the plaintiff to at least justify the trial court in submitting the matter to the jury. If that were so, said court had no other alternative. The practice, however, of leaving the jury to determine such cases has been permitted often when the responsibility was really upon the court. It is wrong and unjust to the medical profession to pursue such a course. It tends to encourage the institution of suits against its members when no grounds exist therefor. A physician, in the treatment of disease or in the performance of a surgical operation, does not always achieve that success he desired. Circumstances often intervene over which he has no control, and render his treatment unsatisfactory. This is more especially so with surgery. It frequently happens in the reduction of a fracture or dislocation that, for some cause for

which the surgeon was in no wise responsible, the parts of the broken bone have not properly united, have been found not to be in perfect apposition, or the dislocated joint to be enlarged, or that muscular action of the limb has become suspended, or the limb become crooked; and sometimes, in consequence of important nerves having been severed at the time of the fracture, a loss of sensation of the parts is occasioned, resulting in a permanent numbness, and amputation becomes necessary. In a majority of such cases the party injured by the casualty will claim damages against the surgeon who attended upon him, and have no difficulty in having an action instituted to enforce it, predicated his cause upon alleged negligence in the reduction of the fracture or dislocation, or of insufficient support to the broken parts, or of too tight bandaging, or upon some other pretext, but relying mainly upon the deformity of the limb as the ground for a recovery; and generally, through the sympathy, prejudice, or stupidity of a jury, succeed in mulcting the defendant in damages. I have listened to the trial of several such cases, participating in some of them as attorney, and I have never yet heard an argument in favor of a recovery that did not consist almost entirely in commiserating the unfortunate plaintiff, and in lampooning and ridiculing the more unfortunate surgeon. The average juror knows very little about such matters. If he has sufficient discretion to understand them in the outset, he will lose it by the time he has heard the expert testimony and the summing up of the counsel. A trial court should never allow a case of malpractice to be submitted to a jury, unless the plaintiff has fairly shown by competent proof that the defendant is guilty of the charge alleged against him. I am satisfied that actions of that kind against physicians, especially surgeons, are liable to incite injustice, and are detrimental to the interests of the community. Persons who devote their lives to the study of physiology and anatomy, with a view to relieve the misfortunes and sufferings of mankind, deserve encouragement. The practice of bringing that character of actions against surgeons of acknowledged skill and ability, and subjecting them to the payment of large sums of money, has had a strong tendency to induce them to hesitate about setting broken bones or performing other operations essential to the alleviation of human misery, and, if not checked, is liable to drive them out of the profession and leave the performance of its duties to irresponsible quacks and empirics.

“I have examined the evidence in this case carefully, and am of the opinion that as a whole it is not sufficient to establish that the appellant was unskilful or negligent in respect of the matters alleged in the complaint. The judgment appealed from will be reversed. Ordinarily such a disposition of a case is followed by an order remanding it to the court below for a new trial, but under the peculiar circumstances existing in this case, such order will not be made. It will be remanded, however, with directions to dismiss the complaint.”



## BOOK REVIEWS.

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A TEXT-BOOK OF PRACTICAL THERAPEUTICS, WITH ESPECIAL REFERENCE TO THE APPLICATION OF REMEDIAL MEASURES TO DISEASE AND THEIR EMPLOYMENT UPON A RATIONAL BASIS. By Hobart Amory Hare, B.Sc., M.D., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia; Physician to St. Agnes's Hospital and to the Medical Dispensary of the Children's Hospital; Laureate of the Royal Academy of Medicine in Belgium, of the Medical Society of London, etc.; Secretary of the Convention for the Revision of the Pharmacopœia of 1890. Second Edition, Enlarged and Thoroughly Revised. In one handsome octavo volume of 658 pages. Philadelphia: Lea Brothers & Co., 1891.

We have read many flattering notices published in the medical journals of this country and abroad of the first edition of Professor Hare's "Practical Therapeutics." The remarkably prompt sale of the book, the first edition of which was exhausted within a few months, and its introduction as a text-book in a number of reputable medical schools, constitute the best proof of the high value of the work, and that it has justly, and in an unbiased manner, been accepted by the medical profession. The publishers have been obliged to bring out a second edition, the one now before us. After a careful examination of the work, we can say, in general, that we fully concur in what has already been favorably expressed by the medical press and in private by many competent authorities. The book certainly embodies all that is worth knowing, up to the present time, of practical therapeutics.

The book is divided into four parts. Under Part I. are given "General Therapeutic Considerations," including modes of action of drugs; modes of administering drugs; dosage; idiosyncrasy; absorption of drugs; duration of action of drugs; strength and reliability of drugs; indications and contra-indications; combination of drugs for a joint effect; and incompatibility.

Part II. includes the complete history and application of drugs, these being treated separately and in alphabetical order without following any especial classification. This arrangement is to be commended, since classifications are of no especial value, owing to the present unsettled state of pharmacology, and to the fact that they often represent only individual fancies. As the author well puts it, "Thus, morphine may be classed by one writer as a nervous sedative, by another as a sleep-producer, by a third as a bitter substance, and by a fourth as a respiratory depressant. Bromide of potassium can, with equal propriety, be called a spinal sedative or a cerebral sedative, or caffeine be classed as a cerebral stimulant, a circulatory stimulant, or a diuretic." Referring to the individual medicinal substances, while all the classical remedies, whose value has been and is still recognized, are given proper attention, many of the newer medicaments, especially those that have rendered the most practical service, "which have been tried with sufficiently good results to warrant their introduction into a text-book and work of reference," are treated by the author in his usual masterly manner. Yet some useful drugs, such as amylenehydrate, hydrastinine, hypnone, kava-kava, methylal, and urethane, are not mentioned in the body of the work. We find, however, hypnone, lewinin, and urethane in the posological table. Here the dose of hypnone is set down as from one-half to one minim, which is cer-

tainly a very small quantity. Norman (*Journ. Ment. Science*, vol. xxxii. p. 519) has given the remedy with success in doses of from five to twelve minims, and it is said that even larger amounts have been employed without producing untoward effects. In the same table it is also stated that fifty-per-cent. solution is the dose of lewinin. This name is an unfortunate one, since the term has been proposed to represent the alpha-kava, a resinous body extracted by Lewin (*Berl. Klin. Wochenschr.*, January, 1886) from the root of the *Piper methysticum* by means of alcohol. No active principle has as yet been isolated from kava-kava, and, therefore, kavahin, yangonin, and lewinin, given by different investigators to one and the same body, whose true nature has not been thoroughly studied, are confusing, misleading, and unreliable names.

Remedial measures other than drugs and foods for the sick come under Part III. In the first portion of this section are considered acupuncture, antiseptics, cold as a remedy, counter-irritation, disinfection, heat, cataphoresis, leeching, rest-cure, suspension, and venesection. Although "electrical therapeutics has outgrown any work save one devoted to that subject alone," this, in our conception, is no reason why the author should not in future editions give at least some of the most important practical points in the use of electricity, which would certainly enhance still further the value of the book. We have found the paragraphs devoted to rest-cure unusually interesting. The following programme for a day's existence is given as an example of what the physician should order: "7.30 A.M., glass of hot or cold milk predigested, boiled or raw, as the case requires; 8 A.M., the nurse is to sponge the patient with tepid water, or with cold and hot water alternately, to stimulate the skin and circulation, the body being well wrapped in a blanket, except the leg or portion which is being bathed; after this the nurse should dry the part last wetted with a rough towel, using some friction to stimulate the skin; 8.30 A.M., breakfast: boiled, poached, or scrambled eggs, milk-toast, water-toast, or a finely-cut piece of a mutton-chop or chicken; 10 A.M., massage; 11 A.M., a glass of milk, or a milk-punch, or eggnog; 12 M., reading for an hour; 1 P.M., dinner: small piece of steak, rare roast beef, consommé soup, mutton broth, and any one of the easily digested vegetables well cooked; 3 P.M., electricity; 4.30 P.M., a glass of milk, or milk-punch, or eggnog; 6.30 P.M., supper: this should be very plain, no tea or coffee, but toast and butter, milk, curds and whey, or a plain custard; 9.30 P.M., a glass of milk or milk-punch."

In Part IV. the *collaborateurs* of the author contribute articles for the section on "Diseases," and there are besides a "Table of Doses and Remedies," "Tables of Relative Weights and Measures in the Metric and Apothecaries' Systems," an "Index of Drugs and Remedial Measures," and an "Index of Diseases and Remedies," these two latter sections being quite valuable.

It is thus seen that little or nothing has been left untouched. On the whole, the book keeps abreast with therapeutic progress, and nothing, it seems to us, of peculiar importance has been overlooked. In the present edition, which has been thoroughly revised, some of the errors which appeared in the first edition, through the carelessness of type-setter and proof-reader, have been corrected, and a very large mass of new and most valuable material has been added. Professor Hare, we are glad to see, has not attempted to burden the reader with unnecessary lengthy discussions regarding the properties and uses of drugs, but has wisely written in a brief and pleasant style all that is in conformity with our *positive* knowledge of the physiological action and therapeutic application of each medicament considered, and thus his "Therapeutics" becomes not only an excellent text-book, but also an invaluable work of reference.

The contributions by Professors George E. De Schweinitz, Edward Martin, Barton Cooke Hirst, and Dr. J. Howard Reeves, on the treatment of diseases of the eye, that of venereal diseases and on antiseptics, that of diseases of the puerperal state, and that of the upper air-passages respectively, are worthy of their thoroughly competent authors. In connection with Professor Hirst's article, we may say, in



passing, that we have recently seen the worst and apparently a hopeless puerperal case of septic cystitis, accompanied with systemic infection, improve under the almost exclusive application of the treatment recommended by the author just cited, and with later strong indications towards recovery of the patient.

To conclude, then, we will say that with one single exception (the book being also of American origin), we know of no other work in the English language that so thoroughly represents the status of modern therapeutics as Professor Hare's book.

D. C.

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*NOTE TO CONTRIBUTORS.*

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EDITOR.

# INTERNATIONAL MEDICAL MAGAZINE.

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## ORIGINAL COMMUNICATIONS.

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### *HINTS ON THE PATHOLOGY OF FRIEDREICH'S DISEASE, BASED ON THE STUDY OF A SERIES OF TWENTY-FOUR CASES.<sup>1</sup>*

BY SÄNGER BROWN, M.D.,

Professor of Forensic Medicine and Hygiene, Rush Medical College; Professor of Diseases of the Nervous System, Post-Graduate Medical School of Chicago; Member of the London Neurological Society; Fellow of the New York Academy of Medicine; Fellow of the Chicago Academy of Medicine, etc.

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OF the utmost importance in the present condition of the subject is any addition to the stock of exact clinical and pathological data in the study of degenerative diseases of the central nervous system, for it is only by the examination of such data that a durable and reliable basis of classification can be reached for the guidance of the practitioner. There has been such a large accumulation of recorded facts bearing upon the subject within the past few years that the conclusions previously reached from the data then at hand are no longer tenable.

Two broad divisions, however, may so far be pretty safely made, one in which heredity can be demonstrated to play a prominent part, and one in which this influence is not apparent. Of the former the so-called Friedrich's disease may be taken as a type, and of the latter the ordinary form of tabes, and unless it should be demonstrated that heredity plays an important part in the progressive form of spinal muscular atrophy, disseminated sclerosis, the pathological process giving rise to the symptom complex,

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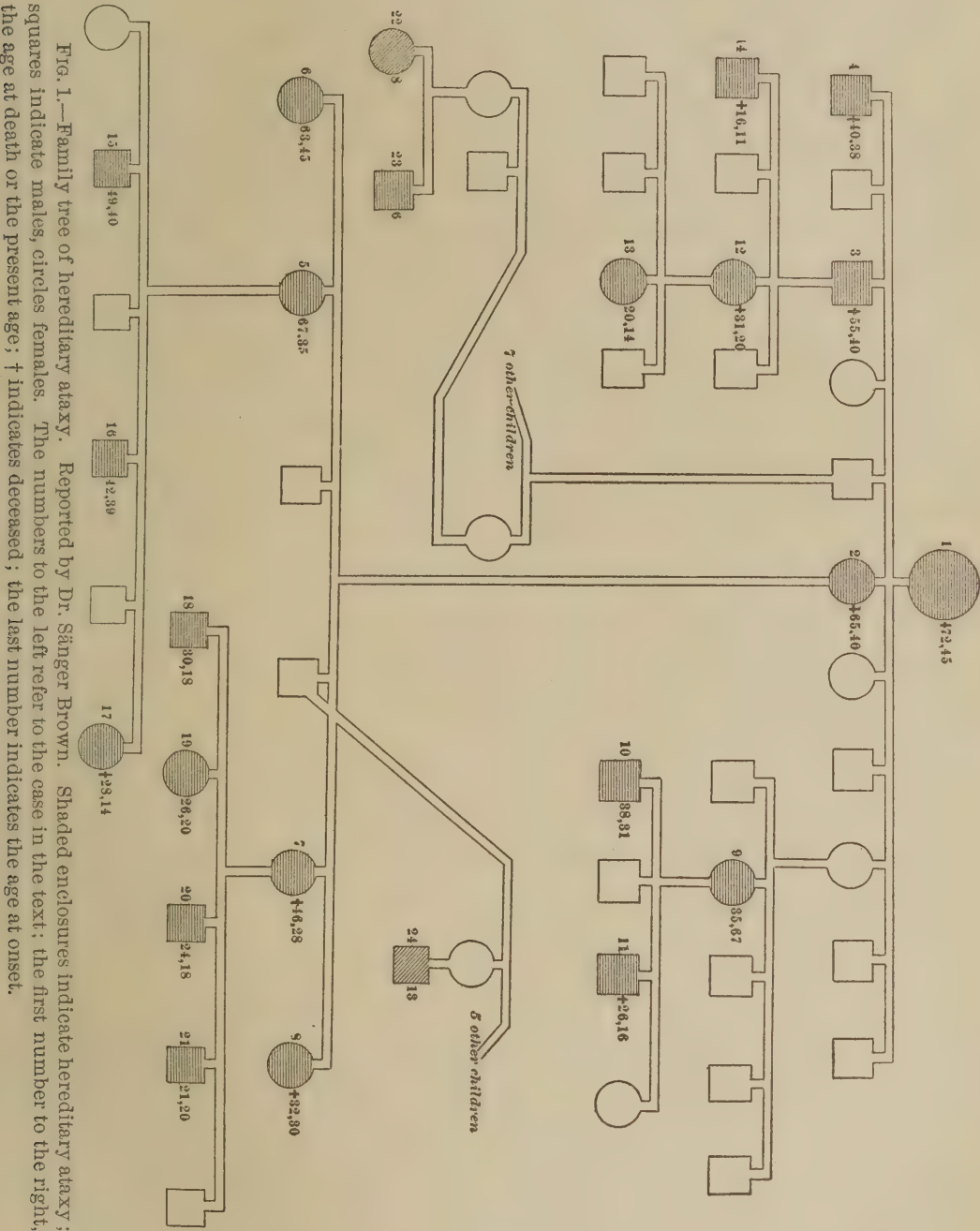
<sup>1</sup> Read before the American Medical Association, June 8, 1892, and two of the cases presented.



commonly described as Friedreich's disease, must, I think, at the present time, be regarded as constituting the sole instance of hereditary degenerative disease of the nervous system. In this disease the essential pathological features are that certain tissues have derived such a deficient vital endowment from the parent that they undergo a more or less premature, rapid, and extensive degeneration; and, further, the effect of this process is mainly, if not exclusively, confined to the so-called upper nerve segment, and to the conducting filamentary process, and not to the body of the cells of this segment; different cases and series of cases presenting considerable variation both in the extent, degree, and period of onset of the pathological process. That in the future there may be discovered certain laws determining the significance of certain variations, such, for instance, as whether or not the knee-jerk is lost, retained, or exaggerated, or whether or not there is nystagmus, optic-nerve atrophy, or integrity of the sphincters, is quite possible; but existing data do not, I think, render an attempt to found a classification upon these differences feasible.

With this view of the subject the symptom complex marked out by Friedreich in 1861 might be taken as the first link in the chain, and up to the present time the report by Tooth, of London, in 1891, of four brothers affected with spastic paraplegia without ataxy, but with affection of the voice and sphincters, and no other important symptoms, as the last link; all other cases, including those of this series, forming intermediate links. For, notwithstanding the differences existing between this series and that described by Friedreich, the heredity, the ataxy, the marked affection of the voice would strongly suggest, if not indeed positively demonstrate, that they belong in the same category, and this being admitted, the cases reported by Tooth should also be included, for there is as much difference almost between my series and Friedreich's as between Tooth's series and mine. The comparative absence of the various neuroses among the relatives of the individuals composing this and other series, and among the individuals themselves, has suggested to my mind the probability that the primary defect might be rather in the accessory than in the essential nerve elements, for it is a matter of general belief among neurologists that if hereditary defect of the nervous elements is proved to exist, this is apt to be manifested by the appearance of various neuroses in the family so affected. Here we have, indeed, marked evidence of an hereditary degenerative process affecting the nerve elements, but if the above considerations are valid, not commencing in them. This view is rather supported, also, by the consideration that, the defect being transmitted in and confined to a protoplasmic cell, the whole cell ought reasonably to suffer, to some extent at least. This view is harmonious with the assumption that the inherited defect is confined to the connective-tissue cell, which is affected throughout, but inconsistent with the theory that the primary defect is in the nerve-cell, for in the latter case we have to conceive of the inherited defect as being arbitrarily restricted to a mere part of a cell, to wit, the axis-cylinder; and

that in the face of the generally-accepted belief that the nerve-cell and its process are continuous and homogeneous. Then, too, the frequency with which there is considerable jerkiness in the various movements, including nystagmus, suggests a pathological analogy between this disease and disseminated sclerosis (in which the primary pathological process almost certainly



commences in the connective tissue); in the former the process being more general and less intense than in the latter. In disseminated sclerosis it is easily conceived how a motor-nerve current may be suddenly brought up in full career, so to speak, against a sclerosed patch, and with momentary interference force its way through, and thus on to its destination, with a corresponding affection of movement. In Friedreich's disease a similar obstruction, though less concentrated and arresting the current more grad-



ually, may be hypothecated, with a corresponding motor result, while in typical tabes the ataxic movements are more reasonably accounted for by assuming an interference with the centripetal currents. From the foregoing considerations I deduce the corollary that motor defects in this disease are mainly due to interference with the centrifugal paths of the upper nervous segment.

The accompanying diagram (Fig. 1) represents a series of cases of hereditary degenerative disease of the central nervous system considerably more extensive both in regard to the number of individuals affected and the number of generations through which it has extended than any that has hitherto come under my observation. I presented essentially the same series a few months since to the Chicago Medical Society, but was then unable to present any of the cases, as I had hoped to do. I am very glad to be able to present two of the cases now, because I am well aware that where a report is made so extensive, so circumstantial, and, withal, departing so widely from previous reports as to rudely disturb, perhaps, existing theories, the sceptical might naturally be expected to mistrust either the capacity or the honesty of the reporter. I have had four of these cases (XVIII., XIX., XX., and XXI.) under observation over a year, and two more (IX. and X.) for about nine months; and still another (XXII.) I examined thoroughly three months since,—that is, since reporting the series to the Chicago Medical Society,—and since that time also two cases (V. and IX.) have died, but, unfortunately, I was unable to get an autopsy. Two others (V. and XV.), living at a distance, were thoroughly examined for me by Dr. Norman Bridge, so that in nine of the cases the examination may be regarded as fairly satisfactory. In all the other cases I have been able to get a definite enough account of the symptoms to enable me to make a diagnosis, and this is not such a difficult matter, because when the disease is well developed it has so many prominent diagnostic features, and because the families among whom it has been distributed have been composed of people of good social position, of good education, and superior intelligence.

CASE XVIII.—Male, single, thirty years of age; business man of correct habits, with an excellent family history aside from this disease, the hereditary relations of which are readily seen by reference to the chart. With the exception of the effects of the disease now under consideration, the general health has always been good, and the patient, from his childhood up, showed more than an ordinary degree of bodily and mental vigor, but these characteristics were judiciously directed, so that they do not appear to have had any etiological bearing upon his case, and I merely state them so definitely in order to make it clear that in his case, at least, development was normal.

In this case, as in many others of the same kind, the symptoms developed so insidiously that it is impossible to fix upon a very exact period as marking the onset of the disease. The patient thinks, and this opinion is shared by some members of his family, who, like himself, have made a close study of the subject, that at the age of puberty there was a greater

affection of the voice than could fairly be attributed to that physiological phenomenon alone; and it is quite certain that at eighteen he could not walk steadily when fatigued, and would communicate a perceptible movement to any movable object against which he might happen to support himself. Weakness did not appear in the legs until several years later, and it has always been distinctly subordinate to the ataxy. Ataxy did not appear in the arms until about three years after making its appearance in the legs. An increase in the knee-jerk was an early symptom, no doubt, because quite early in its course the disease was pronounced spastic paraplegia by experienced and eminent physicians. A troublesome tendency to choke was a comparatively early symptom, and this has continued down to the present time. There have been no sensory symptoms of any kind, no affection of the sphincters, no muscular atrophy or trophic disturbance, and no disorder of the sexual functions. The ataxy, impairment of vision (of such a character that the patient could read best in a dim light), difficulty in articulation, and weakness have gradually increased, sometimes more and sometimes less rapidly, for the past thirteen or fourteen years, until the patient has reached his present condition. The patient cannot walk without the assistance of another person, and all the time has a marked subjective feeling of insecurity as if his head must certainly fall violently to the ground. There is distinct weakness of the legs, but I know of no good way of exactly estimating its degree. The knee-jerk is much exaggerated, but less so than a year ago, and equal on the two sides; there was ankle clonus a year ago, but none now; the skin reflexes appear normal, excepting the cremasteric, which is perhaps subnormal. There is marked ataxy in all voluntary movements, and there are associated movements extensive in range and distribution. Thus, a voluntary movement of the hand and arm often sets up associated movements in the opposite hand, the head, and the face. There is ataxic disturbance in the muscles concerned in articulation, including the tongue, with corresponding defect of speech, difficult to describe.

There is marked impairment of vision,<sup>1</sup> due to optic-nerve atrophy, vision being  $\frac{29}{200}$ . There has been diplopia at times of a few days' duration. There is ptosis when the patient is at rest, but the lids are often voluntarily raised so high as to show the sclerotic above the iris. There is lagging of the right external rectus to the extreme right, but no incoordination in the external ocular muscles, and no nystagmus. The pupils respond to light, accommodation, and stimulation of the skin of the neck, but more slowly than normal. There is not much peripheral limitation of the visual field, but there is almost complete color-blindness, red only being distinguished with any degree of certainty. Closure of the eyes has no material effect upon the ataxy.

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<sup>1</sup> I am indebted to Dr. W. T. Montgomery and Dr. Casey A. Wood for having thoroughly examined the eyes.



CASE XX.—Brother of XVIII. Age twenty-five, business man of correct habits, and during boyhood a frequent winner of prizes in athletic contests. Excepting that the disease appeared later, has advanced less rapidly, and that the range of tissues involved is more limited, the history of Case XVIII. may be used for this one. The tendency to choke is absent, and, though the first symptom appeared at eighteen, the arms are not much affected.

Here there is marked ataxy in the legs, as shown in the gait, especially when he attempts to walk, but it would be difficult to demonstrate weakness. The ataxy is not much increased by closure of the eyes, and, as already stated, the arms are not yet much involved, so that he still writes well, though Case XVIII. has almost lost that power, nor have associated movements appeared to any considerable extent. The vision is reduced considerably, and is much better in a dim light than in a bright one, but one would hardly make a diagnosis of optic-nerve atrophy from an examination of the disk alone. There is ptosis when at rest, and the lid is often raised too high by voluntary effort, but there is no nystagmus. There is obvious but not great impairment in articulation.

In Cases X. and XVII. there appears to have been something like lightning pains, not so severe, however, and in X. there is considerable insufficiency of the rectal and vesical sphincters, though in every other respect the case is practically the same as XVIII. I might add, too, that in Case XVII., during the last months of life, there was marked melancholia, with great emaciation.

CASE XXII. is a rather backward girl of eight, whose parents first noticed in her at the age of five a tendency to walk upon the toes, which has steadily increased, so that at the date of my examination there was observed some permanent spastic contracture of the right leg at the knee, with ankle clonus on that side, and greatly exaggerated knee-jerks on both sides. No atrophy, ataxy, or apparent weakness, and no disturbance of sensation. This case, I am informed by a gentleman who examined Tooth's cases, is quite similar to the latter.

For a more complete report of the whole series I must refer to the *North American Practitioner* and the *Chicago Medical Recorder* for February of this year, from which it will appear, I think, that Case XVIII., as here described, with the exceptions noted, is fairly typical of the series.

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### ENDOMETRITIS.

BY J. M. BALDY, M.D.,

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OF late years it has become the habit of gynæcologists to consider all endometrical disease as symptomatic and not an independent lesion. It is certainly true that many pelvic diseases are accompanied by an unhealthy condition of the endometrium. Especially in pelvic inflammatory disorders

the lining membrane of the uterus is so frequently affected as to have given rise to the supposition that it is either caused by the pelvic disease, or rarely occurs independent of it; and it has been broadly stated that a cure of the pelvic disorders would result in a disappearance of all symptoms. The temptation is strong to accept this theory, which appears at first blush to be so plausible, but which is, nevertheless, most fallacious. Daily experience teaches that endometritis, as an independent disease, is quite a common disorder, and is the cause of much of the suffering of women.

The causes giving rise to the disease are septic and specific infection. In a large proportion of cases a history of gonorrhœa can be obtained as the beginning of the sickness. The majority of the remaining patients will have suffered from post-puerperal disease, following either a labor or an abortion. If in the case of either of these infections the disease be neglected and spreads to the cavity of the uterus, it soon spends its force and settles down to a chronic condition. It may or may not extend into the Fallopian tubes and cause a salpingitis and peritonitis. Should it do so, as is often the case, the removal of the appendages will not necessarily bring about a cure of the patient; in fact, this is the secret of the failure of laparotomy in many of the cases which are going from one clinic to another for relief. Even if the disease is complicated by pelvic disorders of an inflammatory nature, especially if the two arise from the same cause, it is well to turn our attention first to the endometritis, in which case a laparotomy may at times be avoided. In other words, in certain cases, embracing the two diseases, the symptoms of the endometritis may overshadow those from salpingitis; this is especially true in instances in which the intra-peritoneal damage has not been very serious. In those cases where intra-peritoneal inflammation has subsided, and only its products (adhesions) remain, the treatment of endometrial inflammation, which, under these circumstances, is usually chronic, can be carried out with impunity, if proper care be taken. Of course, in the event of there being an acute or even subacute pelvic inflammatory condition present, great care must be taken in interfering with the uterus in any way, else an already bad condition of affairs may be made much worse, and even serious.

In many patients in whom there exists post-puerperal septic endometritis or specific endometritis, the disease has stopped short of the Fallopian tubes, and has not involved either them or the peritoneum. These cases, especially the septic ones, are by no means uncommon, and are daily overlooked. The women wander from one doctor to another, and finally, when their money is all gone, into the public clinics, seeking relief in vain. It is often a matter of surprise to me that many of them have never had even an examination, but have been treated for months and years with drugs, or have been advised to use an injection of hot water. The hot-water injections, as usually given, are worse than useless; just sufficient water, at a moderate temperature, to cause a congestion of the uterus and pelvis is used, and the congestion is not relieved by the secondary effect of the hot water,—



viz., the contraction and consequent driving away of the blood from the already-diseased organs.

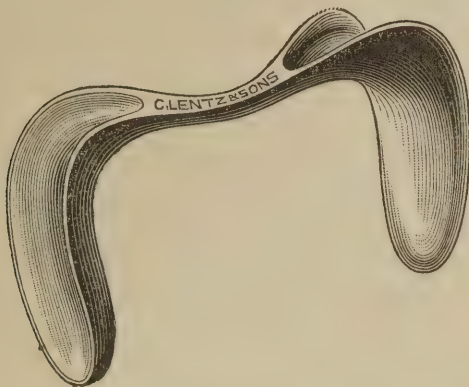
Such women suffer from a continual uterine discharge, more or less profuse; there is, perchance, a feeling of weight and heaviness in the pelvis, accompanied by backache; at times they feel weak and worn out. The menstrual function is disordered, being irregular and profuse; pain may or may not attend this function. These symptoms exist either alone or in various combinations, the only constant and reliable one being in the uterine discharge. It is important to bear in mind that all discharge from the uterus does not mean that endometrial disease exists; such a discharge is frequently due to the irritation of ovarian and tubal disease, and not infrequently to general conditions, such, for instance, as anæmia. A local examination discloses an enlarged and heavy uterus, from the cervical canal of which an unhealthy, thickish discharge is oozing. Oftentimes the cervix is eroded, and the mucous membrane of the everted lips, if the lips be everted, bleeds on being touched. This hemorrhagic condition is more apt to be present when the disease is still acute; but, nevertheless, it is at times seen in the chronic cases. In some instances the uterine body is comparatively normal to the touch, so far as its consistency is concerned; again, it may be either too soft, or, what is more common, extremely hard, and even almost fibrous in character. These changes indicate that the disease is not altogether confined to the endometrium, but has invaded the structure comprising the uterine wall. It is no uncommon thing to see an endometritis and a metritis coexisting; in fact, in chronic cases it is the rule rather than the exception. This is the condition so commonly known as subinvolution. In other words, endometritis, metritis, and subinvolution are for all practical purposes one and the same thing; they all originate, in most cases, as an inflammation of the endometrium, and the same general principles are involved in their treatment.

When this condition of affairs exists—a large and abnormally heavy uterus—there is very apt to be a retro-displacement of the womb sooner or later. Whether or not all displacements which give rise to serious symptoms are originally caused by uterine inflammations, it is a curious fact that it is a very rare thing to find a troublesome retro-displacement without either uterine or pelvic inflammatory diseases complicating it.

For the treatment of uncomplicated endometritis and metritis there are a variety of remedies,—some of them quite effective, while many of them are useless or are applied in a hap-hazard way. My own course is to adopt the shortest and surest method of procedure. The woman is put under ether, the cervix is dilated, and the uterus thoroughly curetted; the uterine cavity is then washed out and an application of Churchill's iodine made to its surface. If the bleeding is too free in consequence of these manipulations, the uterus is packed full of iodoform gauze, which is renewed in the course of a day or two. If the bleeding is not alarming it is allowed to continue until it ceases of its own accord. The local depletion is one of the

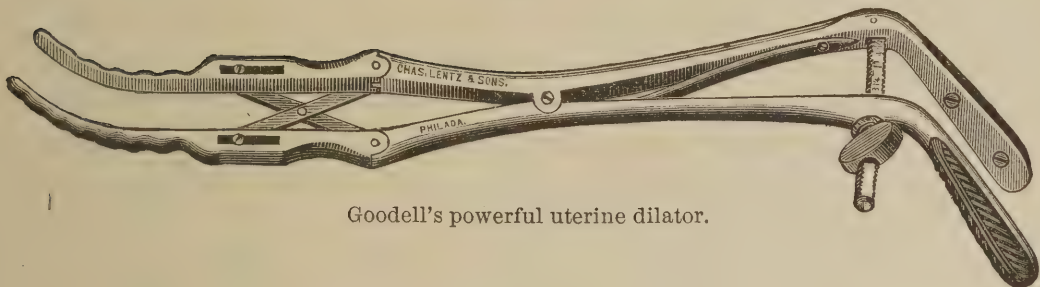
things to be aimed at. In the course of a week, when the discharge coming from the uterine cavity has diminished to little or nothing, ergot may be given, the indications for its use being hemorrhage or an enlarged, heavy uterus. Usually a half-drachm of fluid extract three or four times a day is given for a short period, after which the quantity is gradually reduced, and is finally discontinued in about a week or ten days. Except in the case of hemorrhage, it is not well to begin the use of ergot for at least a week, as its action will interfere materially with the subsequent drainage; even the hemorrhage is best controlled by gauze-packing.

FIG. 1.



Sims's duck-bill speculum.

FIG. 2.



Goodell's powerful uterine dilator.

As to the steps of the operation: The patient is placed in the dorsal position, the dilatation is made, through a Sims speculum, with the Goodell (rapid) dilators, after careful antiseptic precaution. The dilatation is made

FIG. 3.



Martin's double-end curette.

FIG. 4.



Open uterine curette.

only sufficient to easily introduce and manipulate the instruments,—from three-quarters of an inch to an inch. Great care is taken to make the curettement a thorough one. All *débris* is washed away with an antiseptic



solution. This can be satisfactorily accomplished through the rectal nozzle of a bulb syringe. The application of iodine follows immediately, it being made with a long-nozzled uterine syringe. The patient is now returned to

FIG. 5.



Intra-uterine syringe.

bed, and nothing more is done for a week or two, excepting to give absolute rest, hot-water injections, and to keep the bowels soluble, together with the ergot as indicated. No occasion has been found to place a hard-rubber drain in the uterus, as done by Wylie, nor to pack the womb with gauze for a prolonged period, as practised by Polk. If the dilatation is properly made it is found that the cervical canal remains sufficiently patulous for the necessary drainage. The uterus will resent in one way or another the presence of a foreign body, and these procedures can only result in just so much more irritation and consequent discharge.

Some patients are cured altogether by this treatment, but for the most part, in order to secure a thoroughly satisfactory result, treatment should be kept up for some little time after the woman is allowed to get out of bed. It is well in these cases to make an intra-uterine application of iodine about twice a week for a few weeks, then once a week, and finally withdraw the treatment altogether. The hot-water injections should be kept up twice daily throughout the whole course of treatment. It is not uncommon, where the endometrium has undergone a fungoid change, for the disease to return, and the whole treatment has then to be gone through with a second time.

Many patients will not submit to this treatment, in which event it becomes necessary to resort to other methods of management, most of which may be carried out in one's office. A prolonged course of intra-uterine treatment with iodine will in many cases eventually bring about the same result. The drug is carried to the fundus of the uterus by means of the intra-uterine syringe. Iodine is not the only remedy to be used for this purpose, but I have come to use it as a matter of routine, for the reason that no other drug has been found which would give better results. It is not advisable always to use it in full strength, in which case it may, with advantage, be diluted with glycerin in the required proportions. Ichthyol and all similar substitutes have only proved disappointing.

Where the endometritis is accompanied by a pelvic inflammatory condition, the first question to settle is whether or not an abdominal section is to be performed for the removal of the appendages. If they are not sufficiently affected to call for the operation, and if the uterine symptoms predominate and are very annoying, there should be no hesitation in treating the uterine cavity. With the patient on the examining-table, a long-nozzled uterine

syringe may with safety be passed into the uterus, even in the presence of considerable pelvic disease, and a local application made. In these cases the strength of the material injected should be regulated by the amount of inflammation, as a strongly-irritating fluid will be much more likely to cause trouble than the mere passage of the instrument itself. Care should be taken that the os is sufficiently patulous to allow of free return of the material injected, else oftentimes a severe uterine colic may result.

Where the pelvic disease has been an old and quiescent one, there need be no hesitation to dilate the cervix gently and curette the cavity of the uterus. In this class of patients there is an opportunity for the very nicest kind of judgment and skilful use of instruments. If one be gentle, skilful, and careful in picking the proper cases, the treatment may be followed by the greatest benefit and no harm.

The use of galvanism in weak currents, intra-uterine, is of marked benefit in cases of endometritis, and if one has an electrical outfit at hand he will be able to accomplish as much as or more than by the intra-uterine method of medication in a certain proportion of cases, but cannot obtain such good results as follow dilatation, curettement, and drainage, together with intra-uterine medication; although even here the electricity may at times be substituted for the iodine with advantage.

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*OPERATIVE PROCEDURES AT THE BASE OF THE BRAIN,  
WITH REPORT OF A CASE OF PENETRATING WOUND  
OF THE BASE OF THE BRAIN THROUGH THE LEFT  
ORBIT; HEMIPLEGIA; REMOVAL OF CLOTS FROM  
THE BASE OF THE BRAIN; RECOVERY.*

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WE are all familiar with the recent developments of surgery of the brain as illustrated by the work of Victor Horsley, Ferrier, Lucas Championnière, Lannelongue, and Keen, relating to nearly all portions of the circumference of the skull and brain; but the base of the brain has been as yet little treated, and offers a new field in cerebral surgery.

In reviewing the literature of the subject, we find Warren's case of trephining for fracture of the temporal bone to be the nearest approach to an interference at the base of the skull. The trephine was applied immediately above the external auditory meatus, and from the amount of serum



which drained away, it was evident that intracranial pressure had been relieved. The patient made an uninterrupted recovery.

The base of the brain occupies the three double fossæ of the skull, thick bony supports to which access is scarcely possible from below. It is evident that should we wish to reach the base of the brain without unnecessary shock, and without mutilation of the patient, we have to seek another means of ingress, endeavor to penetrate the skull laterally, and reach the portion we seek by lifting the brain, insinuating some instrument below it, whereby the intended purpose may be accomplished. On these principles, we have devised a system of operations whereby we can reach different portions of the base of the brain in order to apply to it such measures of asepsis, antisepsis, and drainage as form the tripod of successful modern surgery. Necessarily, the ordinary trephine is the instrument most resorted to. It may be applied to any portion of the skull accessible on the outside. Preserving the anatomical divisions found in books, we divide the base of the skull into the anterior, middle, and posterior fossa, and find

FIG. 1.



Platinum wire egg-beater, used to remove clots from the base of the brain (natural size). Used upon the case reported.

that these various fossæ, though entirely separate one from the other singly, are to all intents and purposes each on one plane,—*i.e.*, should it be possible to penetrate a given fossa, it will be possible to explore without difficulty the full extent of that fossa on each side, provided we have an instrument sufficiently malleable to slide over the rugosities of the skull, and at the

FIG. 2.

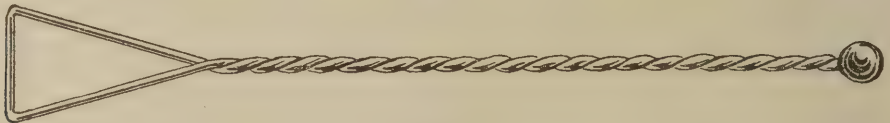
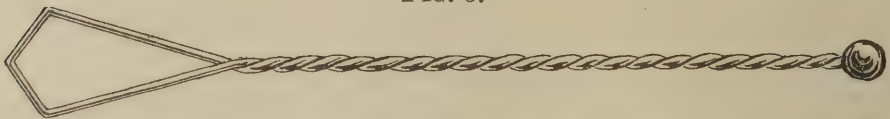


FIG. 3.



Malleable wire instruments for insinuating at base of brain. Used in the experiments on dogs.

same time not to wound the meninges or the brain. Granted a sufficiently positive diagnosis of the existence of a clot, or spicula, or cyst, or abscess in any fossa, the establishing of which diagnosis will depend upon our knowledge of physiology, relief resolves itself into the problem whereby a given spot can be reached and the same treatment applied there as would be applicable in any other portion of the body.

It would be impossible, in the scope of this paper, to describe the various

symptoms that would lead us to suspect disease at the different portions of the base of the skull, but it will be our purpose simply to lay down such rules as will direct us in an emergency. The anterior fossa may be reached by applying the trephine immediately above the supraorbital arch, at its junction with the temporal ridge. The frontal cells are reached ; the inner table presents itself, and hemorrhage, at first profuse, is easily controlled by pledgets of iodoform gauze. We are then brought in immediate contact with the base of the inferior frontal convolutions. The malleable wire instruments of various sizes and shapes, such as will be described later on when we speak of the actual experiments performed, are introduced under the brain so as to reach any spot up to the anterior clinoid process on each side.

For the exploration of the middle fossa, the trephine is applied on a line extending from the tubercle of the zygomatic process to the external angular process of the frontal bone. This would be the line of the diameter of the trephine opening. Such an opening would enable us to explore the whole of the middle fossa, from the sphenoidal fissure to the petrous portion of the temporal bone, and in the median line as far as the cavernous groove. The posterior fossa may be reached by applying a trephine immediately above the external occipital crest, to the right or the left. This exposes the cerebellum below the lateral sinus. It must follow from the nature of these openings that the chief advantages must be, first, drainage ; second, complete disinfection ; thirdly, the facilitating the removal of irritating substances. The latter is accomplished by small platinum wire loops, very malleable, which can be insinuated under the brain, lifting it slightly, and reaching the desired affected portion. By its means, also, iodoform gauze can be brought in contact with the suppurating or bleeding surfaces, and exert its antiseptic or hæmostatic action. This, therefore, is all that we can hope to accomplish in operations at the base of the skull ; but, on the other hand, remembering that this locality is perhaps the most important of the whole body, it becomes a matter of astonishment that these measures have not been applied here. The above-described operations have been performed on three series of three dogs. In one series the frontal fossa was explored ; in the second series, the middle fossa ; in the third series, the posterior fossa. All the animals stood the operation without showing evidence of much shock, and in case the portion of the brain occupying the given fossa on that side was thoroughly separated by means of the platinum loops from the skull, these animals made good recoveries with apparently little shock.

In one case there was profuse hemorrhage from the lateral sinus, which was stopped by means of compression with iodoform gauze. Three days after the operation, the platinum loop was introduced as in the other cases, and the cerebellum on that side explored. In these operations, what we must contend with are, first, shock ; second, hemorrhage ; third, sepsis. Shock can be lessened by preparing the patient for the operation with one-twentieth of a grain of strychnine. This may be repeated during the operation, and



given once every hour after the operation, until the physiological equilibrium has been restored.

Venous hemorrhage, when not controllable by the hæmostatic forceps, must be controlled by pressure from packing with iodoform gauze. There is no objection in such an emergency to packing, even though this create a depression in the brain. The hemorrhage must be controlled immediately, if profuse, should it even necessitate the discontinuance of the operation. In two days this packing can be removed and the operation proceeded with. The hemorrhage, if arterial, will generally be controlled by the hæmostat. Should it come from such a spot as cannot be reached, owing to its having retreated from the edge of the opening, we are to control it as well as we can immediately by packing, and with the rongeur forceps gnaw off such amount of bone as will enable us to reach the bleeding spot and control it with the hæmostat; so that we find ourselves absolutely equal to any possibility of hemorrhage.

Sepsis should not take place if we but observe the rules which it commands for successfully operating upon the peritoneum, etc. Too scrupulous care cannot be given to the sterilization of dressings and instruments, remembering that just as great care has to be observed every time the case is dressed subsequently, as has been observed at the primary operation. But that upon which we meant to lay the most stress, and the greatest purpose of these operations at the base of the skull, is the opportunity they give for thorough scientific drainage. The brain is situated in a bony, unyielding box, unlike any other portion of the body; when it is irritated, and would as a result swell or expand, that is counteracted by the unyielding skull. Hence, the intense symptoms following the least irritation of that organ. When, on the contrary, granted an irritation of the brain, the trephine removes a portion of the skull, a spot of least resistance is presented to the irritated surface, and there oozing will take place which will relieve the intracranial tension. It is astonishing what amount of serum will ooze into the dressings from an irritated brain, creating a surprise how this brain could be supposed to recover its normal condition had this superabundant fluid been forced to disappear by absorption, the cause of its existence being still at work.

The operation over, the medical after-treatment must be a point of great consideration. We all know how the pulse will be suddenly lowered, and the temperature likewise; how a sudden fatal termination can take place unexpectedly, and too much stress cannot be laid upon the absolute necessity for diligent, careful, constant observation of the case, by a competent nurse, who will report the fluctuations in the patient's condition, so that the symptoms can be met immediately. Strychnine in small doses will be found our sheet-anchor to strengthen the heart. A light diet, consisting mainly of artificial foods, will keep up nutrition without calling for too much expenditure of nervous force.

Nutrition, if flagging, can also be increased by constant emulsions of

cod-liver oil. Finally, all resources must be tried and exhausted, until the natural condition of things is gained.

Illustrating these facts is the following case, which has met with the most gratifying result from the principles of treatment laid down above.

I have published elsewhere a full report of this case, but, owing to its unique character, have thought proper to repeat here a concise description of it, also the present condition of the patient.

R. B., aged ten years, fell on a broken fencing foil. The steel penetrated the left orbit, between the inferior orbital ridge and the eyeball. The eye proper was uninjured. There followed coma, right hemiplegia, left facial paralysis, complete aphonia. On exploring the wound, the handle of a Graefe cataract-knife, used as a probe, sank three and a quarter inches internally and above. As the case showed no improvement, but had become very weak and debilitated, with every indication of a fatal termination, we judged that at least a part of the symptoms were the result of compression from a clot at the base of the brain, and, wishing to offer a spot for the relief of tension within the cranium, trephining was resorted to, thirteen days after the accident.

*Operation.*—From the direction taken by the instrument, it was evident that it had penetrated the middle fossa, and that hemorrhagic clots should be sought in this locality. Accordingly, a horseshoe incision was made in the temporal region down to the level of the zygomatic arch, and a three-quarter-inch piece removed, consisting of the temporal bone and a small fragment of the sphenoid; the dura mater appeared much congested. To reach the centre of the base of the brain for the removal of the suspected clot, the platinum wire egg-beater was introduced between the dura and the skull, without wounding the structures. Having reached the cavernous groove, the instrument was then turned on its axis, for the purpose of catching the coagula in its loops. This was effectually done, and about a teaspoonful of old clotted blood was removed piecemeal. While taking more out a considerable venous hemorrhage occurred, most probably as a result of the removal of the clot that occluded the injured cavernous sinus. The trephined opening was immediately plugged with iodoform gauze and a graduated compress applied over it, secured by a tight bandage about the head. The patient reacted well after the operation. The dressings were soon saturated with serum. This serous oozing continued during one month. On the fourth day after the operation signs of consciousness returned. He required free stimulation with strychnine.

Three months after the operation the patient had apparently equal use of both inferior extremities. At present he can walk fairly well without support. Slight motor paralysis in right hand. There remain anæsthesia of the eye and internal strabismus, showing an injury to the ophthalmic division of the fifth pair, which supplies sensation to the eye, and an injury to the sixth pair, which supplies the external rectus, resulting in internal squint, and corroborating our suspicion that the foil penetrated through the sphenoidal fissure. Forty days after the operation the cutaneous wound was closed by a small plastic operation, healing by first intention.

*Remarks.*—1. From the direction taken by the instrument it is probable that it passed through the sphenoidal fissure, wounded the cavernous sinus, the crus cerebri, and entered the left lateral ventricle.

2. The hemiplegia was due to venous hemorrhage and laceration of the crus cerebri and other structures, no spiculæ of bone being detected.

3. The coma, hemiplegia, aphonia, and progressively unfavorable course



of the case was relieved after trephining low in the temporal fossa, lifting the brain and removing clots from the seat of hemorrhage.

4. The vast amount of oozing and secretion from the opening was evidence of the great intracranial tension and of the absolute necessity of drainage.

5. This same principle applies to many cerebral conditions where symptoms of general compression are the result of a local or a general irritant in the cranial cavity, at the base or convexity of the brain.

6. We wish to emphasize the safety of trephining near the base of the skull, the possibility of arresting severe hemorrhage from the sinuses of the dura mater, and the importance of drainage in all cases of cerebral injury.

7. To our knowledge, there is no recorded case of trephining as low in the temporal region and removal of clots from the base of the brain.

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### *OBSERVATION OF A CASE OF ACUTE PURULENT OTITIS MEDIA; CEREBELLAR ABSCESS AND DEATH IN THREE WEEKS.<sup>1</sup>*

BY CHARLES H. BURNETT, M.D.,

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ON February 10, 1892, I was called by Drs. Skillern and Da Costa to see a girl, five and a half years old, who presented marked cerebral symptoms following an acute otitis media, which had occurred three weeks previous.

The history, both ethical and medical, is a peculiar one, and may serve as an excuse for its brief recital. The child was said to have had grippe, without ear complications, in December previous, but had recovered apparently entirely, and was allowed to go out on January 24th to play with her sled. That night she complained of earache in her right ear, and a homœopathic physician was called in. His treatment, unknown to the writer, failed to give relief; he certainly did *not* perform paracentesis of the membrana tympani. The child continued to suffer greatly night and day with earache for a week, until spontaneous rupture of the membrana occurred, when the ear-pain ceased. But the child seemed dull and miserable, and began to complain of frontal headache. She also became weak, and began to emaciate and lose appetite. The bowels and kidneys were not deranged, but the little patient expressed unwillingness to move about, complained of headache, and asked to lie down,—to go to bed, in

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<sup>1</sup> Read in the Section of Laryngology and Otology of the American Medical Association, Detroit, June 9, 1892.

fact, which she did at the end of the second week of her malady. From this time all the symptoms began to grow worse; emaciation, anorexia, and hebetude became marked. The child gradually passed into a stupor, from which she could be aroused, but would cry at such times as though it pained her to be thus disturbed or moved. The case was now abandoned by the homœopathic physician, and the parents summoned to their aid Dr. Skillern, who, diagnosing a brain-malady, called Dr. J. M. Da Costa in consultation. Twenty-four hours later the writer was asked to see the case as one of cerebral disease from otitis.

The child was found lying on her left side, her head thrown back and legs drawn up. Her lips were parted, the lips and the tongue being covered with sordes; apparently no fever, *pulse slow*, child nearly unconscious; perhaps she recognized her mother. A little muco-pus came from the right ear; a perforation in the upper anterior quadrant of the membrana was detected by examination with the otoscope. The membrana tympani was red and swollen. An abscess of the brain was diagnosed, but its precise location was not determined before death. In fact, I was disposed to locate it in the middle cerebral fossa from the acuteness of the aural disease and the youth of the patient.

The parents were informed of the serious nature of the child's disease, and advised to call in Dr. W. W. Keen, with a view to his trephining for relief of the abscess, and obtaining the one chance of saving the life of the patient. Accordingly, in three hours from the time I first saw the case, Dr. Keen examined the child (at 7 P.M.). He concurred in the diagnosis of cerebral abscess, and decided to trephine the next day at 10 A.M.

Dr. Keen's notes are as follows: "When I saw the patient I found a well-nourished child, lying in bed with her head moderately drawn back, mouth open, lips dry and covered with scales of epidermis, tongue coated, temperature 100.4° F., eyes half closed, pupils responsive to light, and neither dilated nor contracted. From the right ear there was a moderate non-offensive discharge. The mastoid region was not swollen, and was probably not tender, although her somewhat irritable condition prevented absolute judgment on this point. There had been no convulsions and no delirium. No satisfactory examination could be made of the eye. Professor J. M. Da Costa and Dr. C. H. Burnett, both of whom had seen her, had made a diagnosis of cerebral trouble following ear-disease, probably extra-dural abscess or meningitis. Both recommended operation, and in this I concurred, the diagnosis still being in my mind quite uncertain between the two conditions. Evidently, however, death would follow speedily if nothing were done.

"February 11, 1892, 10 A.M.—Ether was given and an incision was first made over the mastoid, and the mastoid antrum opened, followed by free gouging of the bone into the mastoid cells. These were found to be filled with cheesy pus, and the bone was so soft that with the gouge held as a pen, between the thumb and fingers, I was able to remove a large part of



the bony tissue. I then made an inch trephine-opening, the centre-pin being placed an inch and a quarter above and the same distance behind the external auditory meatus. As soon as the dura was exposed a Horsley's dural separator was passed downward and slightly forward, until it struck the ridge between the anterior and posterior surfaces of the petrous bone. Then it was passed into both the anterior and middle fossa of the skull, separating the dura for some distance from the petrous bone. No pus was found in either place. The dura, which looked markedly yellow, was then incised, and the separator passed between the brain and the dura for some distance, the result being negative.

"As it was possible that there was an abscess in the temporo-sphenoidal lobe, though I deemed it unlikely by reason of the temperature, condition of the pupils, etc., I passed a grooved director first in the direction of the ala of the opposite side of the nose, and secondly in the direction of the opposite pupil. No pus was found by either puncture. I did not deem it wise, owing to the condition of the child, to trephine over the cerebellum, though the question was carefully considered. The wounds were closed, leaving a slight opening for drainage from the brain, and a drainage-tube was inserted in the mastoid cells. The hemorrhage in separating the dura from the bone had been quite free, but was easily checked by packing. The child recovered well from the ether, and was none the worse for the operation, so far as I could judge. She gradually sank, and died at 9 P.M. the same day.

"*Autopsy*: February 13, 1892, 10 A.M.—Only the brain was examined. While removing the brain an abscess in the right hemisphere of the cerebellum burst through the thin cortex that was left, and discharged about two fluid ounces of odorless pus. On the posterior surface of the petrous bone a communication existed with the middle ear.<sup>1</sup> The tracks of the punctures into the temporo-sphenoidal lobe were perceptible as small lesions in cross-section. No bleeding or other damage had been caused.

"*Remarks*.—The only question to be considered is, whether the cerebellum should have been punctured after failure to find the pus in the temporo-sphenoidal lobe. Looking back upon it after an interval, my decided conviction is that it was a mistake not to do so. The results would have been the same to life in this particular case, but surgically it was an error, and especially might prove such in some other case in which life might be saved."

The lesson taught by this case is that an acute otitis media, with earache and an imperforate membrana tympani, should not be allowed to continue without paracentesis of the imperforate membrane, because the products of

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<sup>1</sup> Dr. William J. Taylor, who made the post-mortem examination, informs me more minutely as to the nature of this communication. It seemed like a widened vascular canal, not necrotic, and to its opening into the cranial cavity the approximating meningeal surface of the cerebellum was adherent. This, of course, makes plain the way of the communication between the ear and the brain. C. H. B.

inflammation in the tympanic cavity, being pent up under tension, not only cause great suffering but may be forced into the mastoid cells, the cranial cavity, or into the vessels near it, and thus gain access to the brain-substance, where an abscess is formed, usually with the result observed in this case. This child's life could have been saved by the judicious and skilful employment of a darning-needle, had nothing better been at hand, and had it been thrust through her membrana tympani the night the earache began; but the physician who saw her first failed to rise to the occasion; in his ignorance he let her suffer and contract a cerebral abscess, from which she died.

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*ALCOHOLIC MULTIPLE NEURITIS, WITH CHARACTERISTIC MENTAL DERANGEMENT.*

BY HOWELL T. PERSHING, M.Sc., M.D.,

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ON November 12, 1890, I was asked to take charge of C. E. N., a Swedish expressman, thirty-five years old. His history and condition were noted as follows: For nine years he has been drinking increasing quantities of beer, reaching about twenty glasses daily. The amount of food taken has correspondingly diminished, and for six months there has been almost complete loss of appetite. Six weeks ago a painful numbness began to be felt in both legs. At the same time there was some swelling from the ankles to the knees. The swelling soon subsided, but the pain increased especially in the left leg. It was then supposed that he had an attack of rheumatism. The legs grew weaker and weaker as well as more painful, so that for two weeks past the patient has been obliged to stay in bed. He has been very restless and emotional, and early in his illness failure of memory was shown by his asking the same question over and over again.

He now complains of numbness and coldness in all of the extremities. Actual pain is but slight. There is tenderness in the calf-muscles and along the anterior tibial nerves, worse on the left side. Tactile and pain sense are greatly impaired in the feet, legs, thighs, and hands, but not in the trunk or face. Power to extend the toes or flex the foot is lost on both sides. Extension of the knees is also weakened, but not to so great a degree. The patient is unable to stand. To make him attempt it, even with assistance, gives him pain and alarm. His grasp is very weak on both sides, the right being a little stronger than the left. Extension of the wrist and fingers is very much weaker than flexion and cannot overcome the slightest resistance. The muscles of the upper arm are paretic, especially on the left side. Those of the shoulder are not affected. The leg, thigh, forearm, and



arm are smaller on the left side than on the right, doubtless owing to greater wasting of the muscles. In the muscles of the left lower limb the strongest current of Barrett's two-celled faradic battery elicits no reaction except slight contraction of the interossei. On the right side faradic reaction is absent in the peronei, extensor communis digitorum, extensor longus pollicis, and the calf-muscles; the quadriceps, anterior tibial, and interossei react slightly. There is no paralysis of the face, tongue, or eye-muscles. The pupils are equal and react normally. No trace of knee-jerk can be obtained, even with Jendrassik's reinforcement.

Anorexia and constipation are marked. Eructations, intestinal flatus, and abdominal pain distress the patient greatly, especially at night.

Liver dulness extends beyond the costal margin. Pulse 96, very soft, but fairly full. The first heart sound is weak and toneless. The lungs are normal. The urine is dense and deeply colored, but otherwise normal. The bladder acts normally.

All questions referring to his present condition are rationally answered by the patient, but he can give no idea of the duration of his illness. When asked when he was last out of doors, he replies, with evident sincerity, that he was out walking about the yard this morning, which, of course, is absurd. He laughs and cries easily, forgets recent occurrences in a few moments, is restless, and at night hard to control.

The foregoing facts having been ascertained, a diagnosis was easily made. The paralysis made certain the existence of disease somewhere in the motor tract, while the muscular atrophy, loss of faradic irritability, and absence of knee-jerk proved it to be in the lower motor segment,—that is, in the anterior gray horns of the spinal cord or in the nerve-fibres.

The subacute onset excluded the chronic and degenerative diseases of the cord, and this left only the various forms of myelitis and multiple neuritis to be distinguished from each other. Poliomyelitis was excluded by the pain, numbness, local tenderness, and anæsthesia.

A diffuse or disseminated myelitis was scarcely to be thought of, not only on account of the normal function of the bladder and symmetrical distribution of the paralysis and anæsthesia, but also because an inflammation extensive enough to involve both the lumbar and cervical enlargements of the cord would cause a more profound general disturbance. With multiple neuritis, on the other hand, the mode of onset and the area of motor and sensory loss and of tenderness, corresponding mainly to the distribution of the external popliteal and musculo-spiral nerves, were in perfect harmony. Moreover, the history of the case showed an adequate cause of neuritis in the form of chronic alcoholism. Finally, assurance was made doubly sure by the peculiar mental defect which is especially associated with multiple neuritis of alcoholic origin.

In such a case the physician's reputation depends more upon his prognosis than upon his treatment. The patient's friends were already much dissatisfied because he was growing worse instead of better, and they were looking

anxiously, though distrustfully, for some one who would immediately stop the progress of the disease and bring about a speedy recovery. It was necessary to assure them that this was from the nature of the case impossible, that recovery was a matter not of weeks but of months, and that for a time the patient might continue to grow worse in spite of any treatment.

This being clearly understood, however, the prognosis was favorable, for life was not threatened, at least not as yet, and there was every reason to expect complete or nearly complete restoration of function. The cerebral symptoms were then not as ominous as they soon became.

The first step in treatment was absolutely to prohibit alcohol in any possible form. Half a grain of calomel was given night and morning, for its laxative and constitutional effects. To stimulate appetite and digestion, strychnine, quinine, and capsicum were administered.

Light nutritious food, consisting mostly of milk and eggs, was urged upon the patient at regular intervals five times a day. Very gentle upward rubbing of the limbs, with passive flexion of the feet to prevent possible contraction, was the only local treatment attempted.

The general response to treatment was very gratifying. The bowels began to act well; food was taken with relish; the pulse became normal in frequency and nearly so in force, while the nights were more restful. Nevertheless the affected muscles continued to lose power and to waste. The patient would continually mistake those about him for persons he had not known for years, some of whom were dead, and the delusions of having just been out or of being in Boulder or Colorado Springs became more prominent and persistent. On November 23 he had a convulsion, in which the forearms were in clonic spasm, the head retracted, and the jaws clinched. The tongue was bitten and there was frothing at the mouth. When I saw him an hour or two later he was tossing about, and it was impossible to hold his attention for more than a moment. The pulse was rapid and irregular.

Under bromide and digitalis he did well until the evening of November 26, when he had three convulsions in as many hours. Notwithstanding an increased dosage of bromide the attacks recurred as many as ten times during the night, the tongue being very badly bitten. Full doses of chloral and bromide now stopped the seizures, and they did not return. For a few days in the first week of December he was delirious, talking almost incessantly during the day and having visions of snakes and rats at night. Happily, he soon began to sleep better, but some quiet delirium was noticed for two or three weeks.

About this time the arms were found to be regaining strength. During January there was very decided improvement, although the anterior tibial and the extensors of the toes on the left side were still paralyzed, showing diminished galvanic irritability and the reaction of degeneration. All acute symptoms having subsided, the galvanic current was now used in addition to massage. The patient could now walk from one room to another, the left foot drooping as in hemiplegia. Appetite remained good, nutrition



and strength improved, the delusions gradually disappeared, and memory of recent events became stronger. Emotional weakness was the mental symptom remaining longest.

At the date of this writing, in June, he can go about everywhere and attend to business, but is not yet strong enough to resume the heavy lifting involved in his occupation. The left foot can be flexed and the toes extended with considerable force, although the anterior tibial muscle and the extensors of the toes react but feebly to a strong faradic current. The peroneal muscles react well.

Knee-jerk has returned on the right side, but there is no trace of it on the left.<sup>1</sup>

The anatomical changes of multiple neuritis, consisting essentially in a breaking up of the myeline sheaths and disintegration of axis-cylinders in the smaller nerve-twigs, fully explain the motor and sensory symptoms of this case.

The affection of the motor fibres, cutting off the muscles from the influence of the large motor cells in the anterior horns of the spinal cord, necessarily causes atrophic paralysis, with changed electrical reactions and loss of tendon reflexes. So also irritation of sensory fibres causes pain and tenderness, and when their conducting power is impaired, loss of cutaneous sensibility must result. Moreover, the fact that only the nerve-fibres are damaged, while their trophic centres, the anterior gray horns and the posterior root ganglia, remain intact, affords a reason for the happy fact that in neuritis, except when caused by lead, regeneration and consequent recovery are the rule.

For the mental state there is no anatomical explanation, yet it must have the same cause as the inflammation of the nerves, for it is a typical example of the psychosis that is present to some extent in almost all cases of alcoholic neuritis, and is only very rarely found in neuritis due to other causes, such as pyæmia or septicæmia.<sup>2</sup> In this case, although emotional irritability and weakness were noticeable throughout the illness, the most striking mental feature was a very great loss of memory for recent events, while isolated occurrences in the past seemed to be recalled with remarkable vividness.

The characteristic and persistent delusion of having recently been out, engaged in his former occupations, was, I think, caused by the loss of time-sense, growing out of this double and almost paradoxical affection of memory. Just as our conception of the distance of an object is formed by comparing it with other objects close at hand, so the proper conception of the time of an event long passed depends upon a number of more recent events being recalled in their proper order along with it. Normal memory

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<sup>1</sup> The left knee-jerk has since returned, and recovery is complete.

<sup>2</sup> See cases reported by Ferrier, *International Clinics*, April, 1891; Suckling and Bramwell, *American Journal of the Medical Sciences*, June, 1888; Thomsen and Korsakow, *Archiv für Psychiatrie*, xxi. 3, xxiii. 1.

must contain a foreground by which the background can be judged. But in this disease the foreground is lost. Now, let a past event be vividly recalled, with nothing more recent by which to judge it, and it will seem to have just occurred. Thus, when my patient would remark, with an air of sober intelligence, that his "rheumatism" would, doubtless, improve faster if he did not have to be out on his wagon, he had practically but two mental impressions,—the sense of present pain and the recollection of driving his wagon. This recollection, thoroughly organized in his brain by frequent repetition, was capable of vivid representation, and, standing quite alone, it seemed to be the memory of something very recent. In the same way, the idea that he was in Boulder or Colorado Springs depended on his immediately forgetting present impressions that ought to dispel the false idea, while the memory of former work actually done at these places was singularly clear. The same explanation obviously applies to his mistaking persons for others known in the past. The fact that the victims of alcoholic neuritis occasionally narrate purely imaginary things as of recent occurrence, does not conflict with this theory,—for what is imagination but a combination of the impressions stored in memory?

This neuritic psychosis is of great importance, for it has a striking individuality, and so may be used in diagnosis, especially since it is sometimes fully developed when the nerves are but slightly affected, and may even appear in advance of the neuritis.<sup>1</sup>

Alcohol has been thought to act directly on the nerve-tissue, but there is good reason for believing that both the neuritis and the cerebral symptoms are due to the action of some toxic substance arising secondarily from perverted nutrition. It may be asked how such a poison can impair the memory of recent events, and at the same time allow the recollection of past occurrences, which should be faint, to be so vivid. Whatever the explanation may be, there is no doubt of the fact that in brain-disease the memory of what is recent fails first. But a probable explanation can be given. Past events made their impression on normal brain-cells in which an active process of repair accompanied any removal of waste, so experiences occurring then were recorded as a permanent alteration in the molecular structure of the cells. The discharge of such cells when irritated by a morbid substance in the blood is in accordance with their molecular constitution, and so calls up the experiences chiefly instrumental in modifying cell growth. But new experiences, occurring during an active morbid process in the brain, have little or no chance to make a permanent impression. The cells are not being built up, but are rapidly wasting, and a new impression is almost immediately lost in the disintegration.

The convulsions occurring in this case could have nothing to do with true epilepsy, as there have been no similar attacks either before or since. They seem to be analogous to uræmic convulsions, and so to corroborate the

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<sup>1</sup> Korsakow, loc. cit.



hypothesis of a toxic agent in the circulation. The urine was again examined at the time of their occurrence, but with negative results.

The toxic cause of alcoholic neuritis has certain elective affinities which are of practical importance. Its preference for special nerves has already been mentioned. It has also a decided preference for the female sex. More women than men suffer from alcoholic neuritis, although men consume vastly more alcohol and suffer far more frequently from other alcoholic diseases, such as cirrhosis of the liver and delirium tremens. A further selective action is shown by the existence of different types<sup>1</sup> of the disease corresponding to the varying degrees in which the motor and the sensory fibres are relatively affected. In the common type, both motor and sensory symptoms are prominent, as in the case here reported. In the paralytic form the motor loss may be great, and yet sensory disturbances be scarcely noticeable; so that without the characteristic psychosis the resemblance to poliomyelitis may be close. In such a case some pain or tenderness along the nerves supplying the paralyzed muscles might still be found, and would be highly significant. Aside from this, a distinction could be well founded on the subacute rather than acute onset, on the distribution of the paralysis, corresponding to that of the musculo-spiral and external popliteal nerves, and on the history of alcoholic excess.

In the ataxic type or pseudo-ataxia of drinkers, in which the sensory fibres bear the brunt of the attack, the symptoms are pain in the legs, sometimes lancinating, blunting of touch and pain-sense, swaying with closed eyes, ataxia, and loss of knee-jerk,—a combination that naturally leads to a diagnosis of locomotor ataxia.

Absence of the Argyll-Robertson pupil, of visceral crises, and of optic atrophy, together with a history of alcoholic indulgence, are the points to be relied on; but they may fail to make the correct diagnosis clear. Not long ago a man died, after being for several years under the observation of a number of neurologists, at the Berlin Charité, all of whom had agreed on the diagnosis of tabes. The autopsy showed multiple neuritis with an intact spinal cord, and not till then did the history of rather hard drinking gain its true significance.<sup>2</sup>

The hyperæsthetic type is characterized by intense pains, usually in the legs, which cast all other symptoms into the background.<sup>3</sup>

The prognosis in alcoholic neuritis is bad in proportion to the derangement of the heart's action and of respiration, and to the severity of the cerebral symptoms. Ferrier<sup>4</sup> says that he always gives a grave prognosis if the cerebral symptoms are well marked. Still, many such cases recover, and, compared with other organic nervous diseases, the prognosis is exceedingly good. In estimating the probability of complete recovery and the

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<sup>1</sup> Leyden, *Die Entzündung der peripheren Nerven*, p. 30.

<sup>2</sup> Thomsen, *loc. cit.*

<sup>3</sup> Leyden, *op. cit.*, p. 32.

<sup>4</sup> *International Clinics*, April, 1891.

time required for it, the degree and extent of the paralysis and the time elapsing before improvement has begun must be considered.

The proper treatment has already been indicated. Electricity must not be used at first, except cautiously, for diagnosis. Contraction of the muscles will aggravate the inflammation. Later, mild galvanic currents, to maintain the nutrition of the muscles until the regenerated nerve-fibres reach them, are of advantage. Massage should be avoided if it gives pain, and in any case should be very gentle. Rest is of paramount importance, but passive motion to prevent shortening of the stronger muscles must not be neglected. The emunctories are to be kept active, and everything done to improve nutrition, frequent and systematic feeding being of great importance. Strychnine and capsicum will be found of good service in combating the anorexia of alcoholism. Beyond this, the treatment must be purely symptomatic and expectant; but every effort should be made to impress upon the patient and his friends the necessity of complete abstinence when he has recovered.

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### *COMPRESSED AIR IN DISEASES OF THE NOSE, EAR, AND THROAT.<sup>1</sup>*

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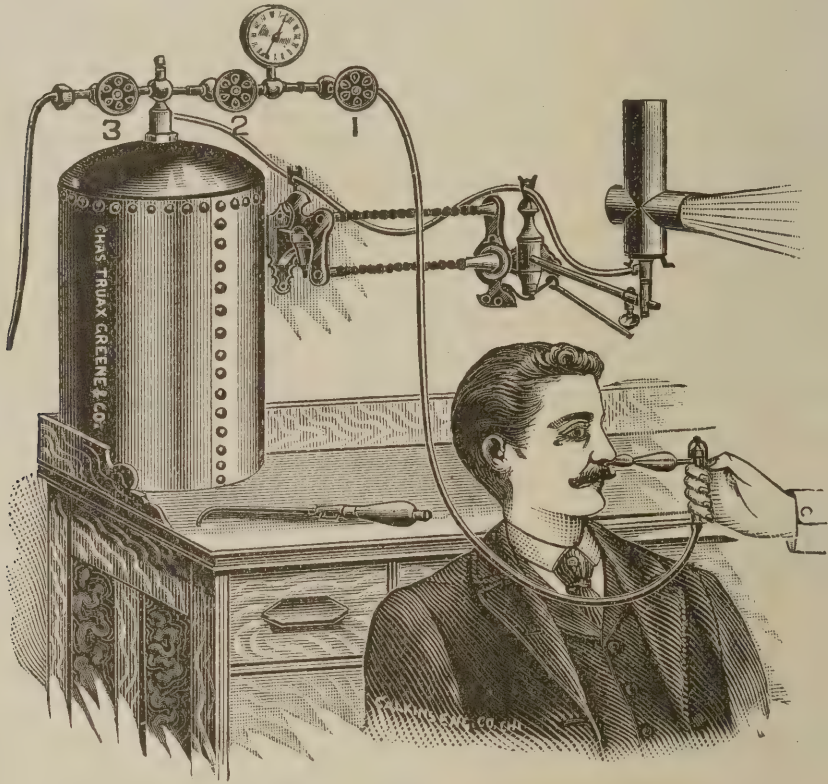
DR. SETH SCOTT BISHOP, of Chicago, gave the results of a series of experiments to determine the various amounts of air-pressure necessary for effective treatment of the ear, throat, and nose. He found that the rubber air-bags in common use by Americans exert a pressure of from six to fifteen pounds. While these afford sufficient pressure for spraying the nose and throat with hand atomizers, which do not require more than from eight to twelve pounds, they do not provide enough force for treating certain conditions of the middle ear, the proper pressure for which, in some cases, amounts to sixty or eighty pounds or more. In order to adapt the improved compressed air apparatus to the safe treatment of the latter class, Dr. Bishop has contrived an air-meter which places the volume of air and height of pressure within the knowledge and control of the operator. The air-meter consists of an air-pressure gauge placed between two valves in the escape-pipe of the reservoir. While it serves the purpose of indicating the whole number of pounds pressure in the reservoir, it also shows the height of pressure of the column of air that is escaping through the cut-off at the end of the tube. One valve governs the volume of air used, while the other determines the amount of pressure. This device places the use of the high-pressure apparatus on a scientific basis. All guesswork is eliminated. A definite dosage of compressed air is made possible. Interrupted

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<sup>1</sup> Abstract of a paper read at the June meeting of the American Medical Association, 1892.



currents can be propelled into the middle ear with as high pressure as seventy or eighty pounds, with the volume diminished in inverse ratio with safety. But without this meter to guide in proportioning the volume to the density, the high-pressure apparatus would not be safely available for ear treatment.



Dr. Bishop gave a detailed description of the air-meter and directions for its use in projecting camphor-menthol and liquid lanoline, and other sprays, into the Eustachian tubes and middle ears. By this method, not only is the air filtered, but the tubes and middle ears are medicated. With these controlling valves he has employed as high as ninety pounds pressure in certain chronic affections of the ear, without any ill effects, and no case of rupture of the drum-head has ever resulted. Thus the ear is rendered nearly as accessible to treatment with the various volatilized medicaments and sprays as the nose and throat. It is evident that an instrument that affords safe treatment with such high pressures can accomplish results that are impossible by means of rubber bags that furnish at most not more than one atmosphere of pressure, or about fifteen pounds. But it should always be remembered that with a high pressure only a small volume of air must be used. The following rule is proposed, to keep the operator within the limits of safety: The higher the pressure the lower the volume should be. Another point worth remembering is that the pressure used in such cases as have atrophied soft palates should not be strong enough to strain them, especially if they are subject to attacks of rheumatic sore throat.

Dr. Bishop has adapted the Butties inflators, to be operated by the improved compressed-air apparatus, with the result of making the use of the

Eustachian catheter unnecessary in the majority of cases. With these inflators, containing medicated sponges, and fitted with the nasal tip, the ears can be inflated and medicated on the principle of Politzer, when the rubber balloon would fail. Consequently, we may avoid the risk of irritating the nose and throat, and of conveying infectious germs by the catheter. The same medicated inflator is fitted with a catheter tip to inject lanoline sprays into the middle ears through the catheter when required.

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*DISCUSSION ON ELECTRICAL EXECUTION.*<sup>1</sup>

BY A. D. ROCKWELL, M.D.,

New York.

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WHILE I do not believe that the best use to which a man can be put is to kill him, yet all will agree that if the law must kill let it kill decently. It is evident that the sentiment against hanging, and in favor of some method quicker and less repulsive, is strengthening, and that other methods will sooner or later replace the rope everywhere. Mr. Edison, while in Paris during the exposition, gave his opinion so positively in regard to the efficiency of electricity that the medical section of the French Academy of Sciences, aided by Marcel Duprez, a prominent electrician, have had the matter under careful investigation. There is always opposition and friction attending changes for the better, and this change has been no exception to the general rule. The whole tendency of our civilization is, however, in the direction of humane methods in dealing with criminals, and that form of execution which is quickest and least repulsive should be adopted. It is a mathematical impossibility that any human being receiving, in proper form, an electrical current of lethal energy should appreciate, even for a fraction of a second, the slightest pain. It has been ascertained that the brain is one-twenty-fifth of a second in recognizing an impression, and one-twenty-eighth of a second in telegraphing that an impression has been received, and, as nerve-force travels only about one hundred feet a second, while the velocity of the electric current is millions of times greater than this, the brain has absolutely no time to appreciate a sense of pain. As between electricity and certain other methods of capital punishment, it is not altogether clear that the former is the best that could be suggested. The guillotine and the garrote are practically instantaneous and painless in their action, and attended with only a fraction of the paraphernalia and expense of the method now adopted in New York State. There is, however, an apparent brutality attending both these methods that repels, and a mutila-

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<sup>1</sup> Read before the American Medical Association, June 7, 1892.



tion and shedding of blood, which public opinion in this country seems unwilling to tolerate.

The action of poison is open to none of these objections, and it seems somewhat singular that it has not more strongly commended itself to the philanthropic mind seeking simpler and more humane methods in the legal taking of human life. But as between electricity and the rope there can, it seems to me, be no question. Let us suppose that it had been customary to execute by electricity instead of by hanging, and that some one in the supposed interests of humanity should suggest that the former method be abolished and the latter substituted; that a method, practically instantaneous and painless, unattended by mutilation, and without any distressing outward manifestations of pain, be replaced by one which usually fails to extinguish life for ten or twelve minutes, which, in many cases, it is reasonable to believe, is attended with torture, and where the convulsive manifestations are horrible to witness,—such a suggestion could not have the slightest claim for serious consideration, and as a matter of fact would never be offered.

May I be allowed to refer to a frequent remark, as illogical as it is thoughtless, in reference to these efforts in the direction of a more humane method in inflicting the extreme penalty of the law? I know not how many times I have heard it said, Why be so careful of the feelings and sensations of the criminal, since he on his part had no care for the sufferings of his victim? It must be admitted that for the most part judicial punishment is inflicted more to protect society than to punish the individual. The law should not, nor does it, punish vindictively any more than does a parent; and, moreover, carried to its ultimate conclusion, such a sentiment as the one enunciated would carry us inevitably back to the inquisition and the rack.

After the passage by the legislature of the State of New York of the law substituting electricity for hanging in the execution of criminals, there arose a terrible storm of opposition that apparently had for its basis extensive commercial interests. It was claimed by the opponents of the new method that electricity was by no means certain to destroy life without the infliction of great pain, and the popular mind was agitated by repeated assertions of the possibility and probability of repulsive disfigurement by the heat and chemical action that would necessarily be developed in the use of currents of such great power. To determine these points and to advise the State as to the best methods of procedure, a commission was appointed, consisting of Dr. Carlos MacDonald, chairman of the State Commission in Lunacy; Professor L. H. Laudy, of Columbia College; and the writer, who, both at the Edison laboratory and at the various prisons of the State, experimented largely upon animals and tested many devices and methods for the application of the current. There could be no charge of cruelty in these investigations, for in no single instance was there any evidence that the slightest pain was inflicted.

The largest animals—such as horses and a bull—instantly succumbed to an electric pressure of one thousand volts, while dogs and calves were as readily destroyed by five or six hundred volts.

But one impact of the current was found necessary, for death was instantaneous in every case.

Immediate examination after the opening of the circuit invariably failed to elicit the slightest respiration or heart-beat, and careful and persistent efforts at artificial respiration, conducted by Dr. Fell, of Buffalo, with the latest and most approved appliances, were without avail.

In view of the fact thus satisfactorily demonstrated that one thousand, or at the most fifteen hundred, volts would instantly kill any animal, large or small, we very naturally inferred that any human being would succumb even more readily ; but, to make assurance doubly sure, it was recommended that not less than fifteen hundred or two thousand volts be employed in the execution of criminals. To our great surprise, therefore, it was demonstrated at the first electrical execution, and confirmed in every subsequent attempt, that it was far more difficult to kill a man by electricity than any ordinary domestic animal, however large. In the only execution which the writer attended, when four criminals were successively subjected to the electric stroke, the first contact of twenty seconds, with a voltage of seventeen hundred, left its victim apparently lifeless, with the exception of a slight fluttering of the pulse and what appeared to be a slight expiratory effort.

Because of these faint evidences of vitality it was decided then, and has been customary since, to repeat the shock two or three times. That the victims were, however, in every instance so thoroughly devitalized by the first shock as to preclude the possibility of resuscitation, and that every vestige of consciousness was instantly obliterated, admitted of not the shadow of a doubt. In these cases a man's brain acts in two ways, and, I should say, that the reasons for this increased strength of current necessary in the case of a human being were both psychical and physical. In the first place, the man knows what is coming, and every nerve and muscle is tense with involuntary resistance. There is a mysterious likeness between nervous force and electric force,—not a resemblance exactly, but a something about each which science has yet to fathom.

I have no doubt that this nervous tension operates directly to impede the action of the electricity, while the secondary effect is physical. The body conducts electricity by virtue of its saline solutions.

Now, fright drives the blood away from the surface to the central portions of the body. When a man is placed in the chair he necessarily is terribly frightened, and the result is that the surface tissues are unnaturally dry, and hence inferior conductors. With an animal these influences do not prevail, but the most striking confirmation of the probable truth of this suggestion lies in the fact of the greater readiness with which life is extinguished in men from accidental contact with electrical energy.

Even where the contact has been incomplete and imperfect, linemen



have been instantly killed with electrical potentials no greater than those employed in judicial executions. When a man thus accidentally comes in contact with the current his will, or nervous force, is in a passive state, and offers no resistance to the action of the current, while the surface of the body is usually flushed with the exertion of work and in the highest state of conductivity.

Notwithstanding the efforts of a united press to exaggerate results, no one who has once witnessed a properly-conducted execution by electricity can fail to commend it as a most humane method of procedure, as compared to hanging. Aside from the first convulsive movement after the impact of the current, the body remains perfectly motionless until the current is broken, when complete muscular relaxation takes place. Leaving out the fact that a human life is being taken, there is absolutely nothing that is repulsive to either sight or hearing during the infliction of the death penalty by electricity.

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## THE IMPORTANCE OF SURGICAL TREATMENT FOR LACERATION OF THE CERVIX UTERI.<sup>1</sup>

BY AUGUSTUS P. CLARKE, A.M., M.D.,

Cambridge, Massachusetts.

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THE author believes that the opportunities now afforded to the gynecologist for studying the effect in any case of laceration of the cervix uteri leave but little doubt that surgical treatment is a most important subject for consideration. Experience has, however, demonstrated that the local application of the various agents which from time to time have been suggested as being remedial or beneficial is at best but a temporary expedient. Whenever a laceration, occurring at the cervix, extends through the internal and external muscular tissue, the mucous coat lining the canal suffers materially from the violence. The *plicæ palmatæ*, which have been described under the term *arbor vitæ*, undergo serious disturbance in their relation to the other tissues with which they are connected. This condition often leads to congestion, thickening, and induration of the parts involved, to more or less hypertrophy and malnutrition of the higher uterine segments, and to changed relation and displacement of the lower cervical zone. When laceration occurs at the cervix, it is not only that the muscular and the mucous structures are injured, but it is also that the mucous glands, which are so numerous in the uterine canal, become disturbed in their normal functional activity. It is especially in the cervix uteri

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<sup>1</sup> An abstract of a paper read in the Section of Obstetrics and Diseases of Women at the Forty-third Annual Meeting of the American Medical Association, held in Detroit, Michigan, June, 1892.

about the arbor vitæ that the mucous follicles, which, when in a healthy condition, afford only a moisture for the maintaining of their function, give rise, when laceration has taken place, to the formation of an altered, perverted, or diseased secretion.

The author then makes reference to the preternatural development of the vascular tissues that so often occurs at these parts; also to the hyperæsthesia of the nervules which are involved in the injury. The treatment best adapted for the permanent relief from the suffering is that afforded by surgical measures. Two cases of cervical laceration which, according to their history, had long been delayed are reported at some length. In one of the cases, which, after repeated exhausting hemorrhages, came under the author's care, trachelorrhaphy was successfully carried out; the depth of the uterine canal at the time of the operation was six and a half inches. The patient died suddenly on the twelfth day after the operation. The autopsy, made twelve hours after death, showed that the depth of the uterine canal was less than four inches, and that the parts had nearly healed; that there was no septicæmia, nor any indication that the operation had hastened the fatal issue. Death resulted from the great loss of blood previously sustained in consequence of the subinvolution and from the degenerative change in the cardiac structure, which had been induced by the invalidism and by the recumbent posture which the patient had been so long obliged to assume. In cases in which the disturbance is greatest at the cervix uteri, operation for repair will often yield most favorable results. In such cases it is surprising to see how speedily the thick and indurated tissue at the cervix softens and relaxes under the influence of the stimulus imparted by operative interference. The venules and lymph-vessels which seemingly had long since lost or suspended their function take on almost immediately renewed activity. In cases of cervical laceration, before the structures become indurated or cicatrized, the ectropion or eversion of the tissues of the os uteri may be the chief indication for which surgical treatment is required.

Eversion, when present to any great extent, almost always gives rise to much local suffering, especially when the patient assumes the erect position. Such a condition of the cervix is sometimes the cause of sterility; it often interrupts the marital relation. The author makes mention of the opinion of Emmet, of Professor Graily Hewitt of London, and of other eminent writers, that laceration of the cervix is liable to be followed by the appearance of uterine cancer. He further says, in a case which recently came under his care, the history showed that there had been a cervical laceration dating back some ten years. The patient's age was forty-six years; she was a multipara. There had been considerable induration and eversion. Nothing from the history showed that cancer had ever appeared in her family. The patient for several months previous to the manifestation of cancer in the cervix uteri had dwelt in a family in which two cases of cancerous disease had occurred. In another case to which the author



was called the patient was a primipara; her age was twenty-nine years. There was no evidence that malignant disease was hereditary in either branch of her family, or that in either of them a case of such disease had ever appeared. One year before she had experienced the initial symptoms of cancer of the cervix, she had devoted much time to the care of a friend who was suffering from cancer of the breast; she had incurred a cervical laceration during the labor, which took place five years before. She experienced considerable inconvenience from the effects of the laceration, and had, from time to time, received local treatment; no operation, however, for repair of the cervix was ever undertaken.

These two cases are, of course, insufficient for establishing any general conclusion, but in the light of what has heretofore been believed they suggest the importance of further observation. The author concludes his paper as follows: In many cases of laceration of the cervix, induration that takes place is limited to an exceedingly small section; the eversion may give but little trouble. In such cases there may have been no arrest of the action of the absorbents that are engaged in the removal of the provisional material incident to pregnancy. In some cases of this class it would seem that the occurrence of laceration increases the activity of the absorbents, or at least helps to expose them to the agency of the materies morbi, or to that of the disease-germs which at any time may gain admission into the vaginal introitus. As more evidence has of late been adduced tending to show that cancer, in its various manifestations, is a contagious affection,<sup>1</sup> a much stronger plea than heretofore can now be offered in support of the advantages to be derived by the resort to the operation for repair of the cervix in which laceration has occurred, though it be of a minor grade.

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## *RETINAL EXCITATION OF CORTICAL ORIGIN IN VISUAL HALLUCINATION.*

BY C. G. CHADDOCK, M.D.,

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THE question to be considered under this title is, does additional activity of the cerebral cortex ever induce centrifugal excitation of sensory end-organs through their afferent sensory nerves, and thus lead to the sense of objectivity or projection,—that is, the characteristic feature of hallucination?

For the sake of clearness, consideration of this question will be confined

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<sup>1</sup> Observations of M. Guelliot and M. Arnaudet, *L'Union Médicale*, 1891.

to the sense of sight. Quite commonly hallucination is made to include all phantasms that have no other than a subjective foundation; but to answer the present question a stricter differentiation of a subjective phantasm than the common definition implies is necessary. Phantasms having a peripheral origin, though without objective or external cause, must be distinguished from those having a central origin. Following Emminghaus,<sup>1</sup> the former may be allowed to fall within the term *illusion*, and hallucination may be made to include only those phantasms that have a purely central origin.

In answer to the question of the occurrence of peripheral sensory excitation of central origin authorities are not in accord, but the voice of affirmation is much louder than that of negation. The belief ordinarily entertained is that in an hallucination there is a backward nervous "current" from centre to periphery, which perfects the sense of objectivity. The prevalent idea is an assumption; for, in the nature of the case, such a reverse "current" cannot be proved to occur; and we may therefore examine the ground upon which the assumption rests, and make a theoretical application of the principle it involves.

Emminghaus<sup>2</sup> says, "The assumption that in hallucination there is a nervous excitation that advances from centre to periphery rests essentially upon the fact that under certain circumstances visual phantasms *change their locations*."

Krafft Ebing<sup>3</sup> states that with perfection of objective projection of an hallucinatory image there is probably secondary excitation of the organ of sense involved.

Wundt<sup>4</sup> also holds to this view, basing his opinion upon the statement that visual hallucinatory images may excite after-images, as well as upon the fact that the phantasms move with movement of the eyes.

Sir David Brewster<sup>5</sup> believed that all hallucinations involved the appropriate sensory organs. Esquirol<sup>6</sup> promulgated the theory of the purely central origin and nature of hallucinations.

While D. Hack Tuke<sup>7</sup> thinks that cortical activity is in itself sufficient to produce hallucination, he still allows that the end-organs may be involved secondarily in some cases; and as criteria for the determination of secondary (?) retinal excitation he states as follows: "If visual hallucinations present the same phenomena as those observed in luminous after-images, they may be regarded as involving the retina."

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<sup>1</sup> Psychopathologie.

<sup>2</sup> Op. cit., pp. 156, 157.

<sup>3</sup> Lehrbuch der Psychiatrie, dritte Aufl., p. 114.

<sup>4</sup> Physiologische Psychologie, Bd. ii. pp. 432, 433.

<sup>5</sup> Letters on Natural Magic.

<sup>6</sup> Maladies Mentales.

<sup>7</sup> Hallucinations, and the Subjective Sensations of the Same, Brain, vol. xi. p. 441.



The phenomena referred to are that the phantasm cannot be artificially doubled ; that it covers real objects ; and that it moves with the motion of the eye. These phenomena include all the evidence of secondary retinal excitation that the other authorities mentioned adduce.

But in visual hallucination all these phenomena might be present without involvement of the retina at all,—that is, they do not demonstrate that the retina is involved.

For the visualization of a mental image not involving the retina would necessarily be projected in the immediate field of vision, and cover objects in that field, or be fused with them. Thus, while these tests will demonstrate whether a visual phantasm is of subjective or objective origin, in the nature of the case, it cannot prove involvement of the retina, or at least that retinal excitation is of central origin, when the phenomenon is thus demonstrated to be subjective.

With primary subjective retinal excitation and secondary elaboration of the impression (illusion) we are not dealing here ; phenomena of this nature are in perfect harmony with the physiological process of visual perception. It is only the possibility of the reverse process, with the primary stimulus having a central origin, that is here called in question.

Centrifugal excitation of the retina in visual hallucination is not a *sine qua non*. There is abundant evidence to prove that mental images undergo objective projection in the absence of the sense-organs that would be involved.

When visual hallucinations have occurred with atrophied optic nerves, if centrifugal excitation took place, the element of objectivity must have been supplied without the aid of the retina.

But let it be assumed that a reverse stimulation occurs and affords the element of distinctness and objectivity essential in hallucination. For the sake of clearness and simplicity let it be assumed that the mental image is to be projected visually and involves one retina ; that the mental image is that of an object of two dimensions of a given size, situated a certain distance from the eye. Then, in accordance with the assumed premises, if this image be projected with an accompaniment of corresponding retinal excitation, which assists in the induction of the sense of its distinctness, the retinal area excited must be exactly that area that would be stimulated if the actual figure were before the eye under the conditions of distance and dimensions imposed.

In the absence of knowledge of any nervous mechanism designed to select nerve-fibres which shall convey the nervous excitation back to the retina, we may allow that cortical activity attending consciousness of the image in itself conditions such a selection of nerve-fibres as must convey to the retina excitation that distributes the stimulation there in the form of the image. In order that the image thus formed on the retina shall add distinctness to the mental image, it must, in the whole of its dimensions, be confined to the very limited area of the retina in which, as is well known, distinct vision is possible,—the fovea centralis. For if the secondary retinal

image were indistinct, as it would be if disposed upon an indifferent retinal area, it could not reinforce the distinctness of the mental image.

If for the sake of distinctness the retinal image must be confined to a certain limited area, and the necessity for this seems clear, then its objective projection would necessarily be like the projection of the distinct image on the retina when the eye is at rest. The apparent visual angle would be all that could assist in the projection of the secondary retinal image. But the visual angle in itself has no determining effect in developing an idea of space; and therefore in the assumed case it could alone have no effect in determining definite projection of the assumed centrifugally conditioned image. Therefore the secondary retinal image, even though it correspond in form with the primary mental image, could not in itself condition an objective projection in harmony with the idea of objectivity with which the image is present in consciousness; and therefore, for distinctness of projection of the mental image, the aid of some other element than that supplied by the secondary retinal image would be required.

Now let the hypothesis be complicated by bringing binocular vision into consideration; let the assumed mental image affect both retinae. Then it must be assumed that the area of stimulation in one retina is physiologically correlated with the stimulated area of the other, in order to have perception of a single image. But in this instance, as in the preceding, the projection that results in that the images are identical will be subject to the same conditions as obtained under the preceding assumption.

To still further complicate the matter, let the image to be projected be invested with the third dimension.

An object having three dimensions seen in binocular vision impresses simultaneous images on each retina that are not identical, save when the object is seen in distant vision; in fact, an object of three dimensions viewed with convergence of the visual axes, may impress images on the retinae that differ almost absolutely from each other. It is largely owing to the disparity of these simultaneous images of one object on two correlated retinae, which undergo subjective fusion into one image, that the idea of the third dimension of the object is derived. Now, in the assumption of the reverse stimulation of the retinae by a mental image of an object of three dimensions, it would not suit the purpose of the assumed secondary excitation were this simple mental picture to be photographed identically on each retina; for then the objective projection of them would not possess that want of identity necessary for the induction of the sense of its third dimension. But a single mental image cannot be consciously resolved into two images, from which the former might be derived, without having consciousness of two images successively; and it is, therefore, impossible to conceive, when the mental image is derived from two or more aspects of an object, how consciousness of the single image could condition a centrifugal excitation of correlated retinae by disparate images. Here again the centrifugal retinal excitation would necessarily lack that determinateness to supply which it is assumed.



The fact is that all our reproduced mental images are complex simultaneous reproductions of a series of simple visual perceptions that were originally received in series and fused by association. The limitation of visual perception conditioned by retinal structure and function is in extreme contrast with the almost unlimited power of simultaneous reproduction in combination with serial simple perceptions in memory. In the very nature of the case, then, a complex mental image could not condition a centrifugal excitation that is objectively impossible; the retinal excitation, were it to occur, would necessarily be simple, or, at most, but a reproduction of some element of the mental image. Thus, exact simultaneous correspondence between the mental image and any secondarily-induced retinal image is impossible.

Under all circumstances, then, under which we can theoretically conceive a mental image as exciting a reverse "current" to the retina, there would be more or less disparity between the mental image and the resulting sensory excitation,—that is, that additional quality with which secondary sensory excitation is presumed to supply the primary mental image for the sake of distinctness is found to be so indeterminate that, if it were to occur, it could only confuse the original mental image.

But if secondary excitation of the retina could not intensify the quality of distinctness in a mental picture, might it not, nevertheless, add the element necessary for its objective projection? Let it be assumed that it does. Then any visual sensation that does not correspond with the mental image present in consciousness is capable of adding the sense of objectivity; any elementary visual sensation, one as well as another, would serve the same purpose.

If this be true, what need is there to assume that there is any reverse sensory stimulation at all? The retina, like all sensory organs, is almost constantly subject to inadequate subjective stimuli, and any or all of these might aid as efficiently in inducing a sense of objectivity as an indeterminate stimulus travelling backward.

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## *THE SURGICAL TREATMENT OF TRACHOMA.<sup>1</sup>*

BY JOHN E. WEEKS, M.D.,

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IN the present stage of our knowledge of the treatment of trachoma, surgical procedures accompanied by proper local medication afford the most efficient and most expeditious means of effecting a radical cure. Surgical

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<sup>1</sup> Read before the Section on Ophthalmology, American Medical Association, Detroit, Michigan, 1892.

interference is not a thing of recent date. Scarification, more or less extensive, has been resorted to for many years. In the beginning of the present century, after the return of the French troops under Napoleon from Egypt, this disease assumed such importance and was so widely spread throughout Europe that the minds of all medical men were active in the attempt to devise means for its cure. At this time scarification was quite widely employed, apparently for the purpose of local depletion in cases where the hypertrophy of the conjunctiva was marked. From 1812 to 1813 bleeding was extensively practised in England and Germany for the cure of this as well as of almost all other diseases, the amount of blood taken running as high as sixty ounces in some cases. Some surgeons bled from the veins, others from the arteries, each claiming especial advantages for his method. Local bleeding by means of leeches was advised, and from eighty to a hundred leeches were employed in some cases. Moxies and blisters were also used.

In 1811 Rust (London) advised excision of the affected conjunctiva. This was done by Elbe (Stuttgart) in 1839. In 1854 Pilz (Prag) practised excision of individual follicles. In 1859 Barilli, an Italian, devised an instrument consisting of a brush made of fine metal wire, which he used for the purpose of brushing out the trachoma follicles. Samelsohn<sup>1</sup> employed a fine thermo-cautery for the destruction of individual granules, effecting a cure by repeated sittings. Reaction was controlled by cold compresses.

Fienzal, Fröhlich, and Hirschman have also practised this method. Reich<sup>2</sup> has used the galvano-cautery, employing a fine-pointed electrode. The thermo-cautery was used by H. Korn,<sup>3</sup> in 1870, in the following manner: A glowing platinum rod was passed over the conjunctival surface, much as the crystal of the sulphate of copper would be employed, the globe itself being protected by a Jaeger's plate; a superficial eschar was the result. A partial or complete cure was obtained after three or four sittings. The scars resulting were sometimes very annoying.

The systematic excision of the retro-tarsal fold was first practised by Galezowski in 1874, since which time it has been employed with more or less modification by many operators. Galezowski considers the operation to be applicable in all cases where trachoma granules are present in the retro-tarsal folds. His method is as follows: Ether is used in some, but not in all, cases. The lid is everted and one blade of Galezowski's double-pointed tooth-forceps is passed to the bottom of the cul-de-sac. The teeth of this blade are engaged in a fold of conjunctiva, which is drawn downward, and the forceps are closed over it. This gives the operator control of the fornix folds. With a pair of scissors the piece to be excised is marked out and carefully dissected from the underlying tissue. A piece of conjunctiva, from

<sup>1</sup> Arch. f. Aug. u. Ohrenheilk., vol. iii., 1873.

<sup>2</sup> Klin. Monatsblatt f. Aug., 1888, p. 56.

<sup>3</sup> Berl. Klin. Woch., 1870, p. 201.



three to eight millimetres wide and as long as the fornix folds, is removed. No sutures are employed. The eye is washed with a mild antiseptic solution, a bandage applied, and the patient sent into the ward.

Heisrath, Jacobson, Vossius, and others excise a portion of the upper part of the tarsus, if the tarsal conjunctiva is involved, along with the fornix folds. Sattler uses sutures to close the wound in some cases. If the plica semilunaris is the seat of granulations, Sattler does not hesitate to excise it. Dr. Sneller<sup>1</sup> devised a clamp forceps, which is a modification of Desmane's forceps, with both blades fenestrated, which he employed for the purpose of engaging the fold of conjunctiva to be excised; after being caught in the forceps the fold was cut off by means of the scissors. He washes the conjunctival surface with sublimate, one to three thousand, after the operation, and dusts iodoform on the denuded surface. A bandage is then applied. This dressing is renewed every day until the wound has healed, about eight days after the operation of excision of the fold. The operators agree in saying that in the majority of cases the remaining granulations gradually grow smaller and finally disappear; relapses are infrequent.

Sattler<sup>2</sup> practises scooping out the contents of the follicles, employing for that purpose a sharp oval curette, two by four millimetres in size. The apex of the granule is scarified and the contents then removed with the curette. This is done in all parts of the conjunctiva, the loose folds being made taut by the use of some such instrument as the forceps of Hernheiser. This instrument, which is double-pointed, is so constructed that the distance between the points can be increased after the conjunctiva has been seized. After the operation the conjunctival surface is washed with a solution of sublimate, one to one thousand; this is repeated every day until recovery takes place. Swelling is reduced by the application of cold compresses. A number of sittings are necessary to effect a cure.

Electricity in the form of electrolysis has been advocated by G. Lindsey Johnson, of London,<sup>3</sup> to be used after the following manner: The patient is anæsthetized; the lid is everted over a horn spatula and held in position by a vulcanized double hook. The conjunctiva is then scarified with a three-bladed "sillonneur," adjusted to cut to the desired depth. The incisions are made parallel to each other, and to the margin of the lid over the tarsal and fornix conjunctiva. After the bleeding has abated, the grooves are traversed by a double-bladed electrode, which is connected with six of Stöher's carbon and zinc cells. A yellowish frothy mass exudes as a result of the electrolytic action. After cleansing, the conjunctival surface is dusted with calomel, and is subsequently smeared with an ointment of hydro-naphthol in vaseline, one to eight hundred. The results are said to be very good.

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<sup>1</sup> Arch. f. Oph., v. xxx. 4, p. 131.

<sup>2</sup> Zeitschrift f. Heilk., Berl., 1891, p. 45.

<sup>3</sup> Arch. of Oph., vol. xix. p. 264.

Since Barelli (1859) devised his metal brush for removing the granules from the conjunctiva, other appliances for the same purpose have been brought forward. Fodda (1870) caused an instrument to be constructed consisting of a metal plate set with numerous very fine teeth, arranged in rows, which he termed a "spinatore." Manolescu, of Bucharest, uses a stiff-bristle tooth-brush cut down to one-quarter inch in length for this purpose. Keyser, of Philadelphia, also employs it.<sup>1</sup> This method is employed by Arnaut<sup>2</sup> for the purpose of introducing a strong solution of sublimate, one to one hundred and twenty, or one to one hundred, into the trachomatous tissue merely, and not for brushing out the granules.

Expression as a surgical procedure in the treatment of trachoma is now widely practised. I have been informed by an eye-witness that Galezowski employed this procedure in his clinic in 1874, and that he had a special forceps constructed for the purpose. Wolfe<sup>3</sup> advises scarifying with Desmarre's scarificator, and subsequently squeezing out the contents of the follicles with the thumb and fingers. One or two days later he applies a syrup of tannin (3ii to 3i), rubbing it on the conjunctival surface. At the meeting of the Illinois State Medical Society, 1889, Prince presented a ring forceps which he had devised for the purpose of expression in the treatment of trachoma. They were used as an adjuvant to other non-surgical methods. Dr. H. D. Noyes introduced a forceps of his own design shortly after those of Prince appeared, and he has been followed by Knapp, Gruening, and others. The mode of operating with Noyes's forceps is as follows: The patient is etherized, the lid everted, and the loose folds of the conjunctiva caught up with the forceps. Two pairs are used. A gentle stripping movement is persisted in, the folds being caught by one pair of forceps as the other pair passes off, until all of the trachoma granules have disappeared. The contents of the granules are pressed out and appear on the forceps as pulpy reddish masses. Noyes's forceps are so constructed that the conjunctiva at the canthi and the semilunar fold can be readily reached, which is not the case with the roller, or fenestrated forceps. The granules on the tarsal conjunctiva are reached by placing one blade on the tarsal conjunctiva and one in the retro-tarsal fold. The fenestrated forceps are used much in the same manner. Knapp's roller forceps are used, particularly in the treatment of trachoma follicles situated on the tarsus, by placing one blade on the conjunctival and one on the cutaneous surface. By compression the trachoma granules are crushed into the tissue of the tarsus, their contents not being removed. The after-treatment as carried out by Noyes and Knapp is mildly antiseptic and astringent.

A method for the surgical treatment of trachoma has recently been developed by Darier, in Abadie's clinic in Paris,<sup>4</sup> which consists of a com-

<sup>1</sup> Oph. Rec., 1891, p. 51.

<sup>2</sup> Annales d'Oculistique, January and February, 1889.

<sup>3</sup> Diseases and Injuries of the Eye, London, 1882, p. 51.

<sup>4</sup> Rec. de Ophthal., Paris, 1890, p. 708.



bination of a number of methods previously in use. The affected conjunctiva is scarified, and subsequently a strong solution of sublimate (one to five hundred) is brushed into the tissue by means of a tooth-brush. The method is termed "grattage." It has been used extensively in the clinics of Paris, and to some extent in New York, with very good results.

The surgical procedures employed for the treatment of trachoma have been briefly mentioned. We may now consider their relative value, but before doing so it will be well to consider the indications for treatment.

The onset of trachoma is usually accompanied by redness of the conjunctiva, some hypertrophy of the membrane, and considerable discharge. In certain cases the condition can with difficulty be differentiated from the ordinary conjunctival catarrh. The conjunctiva may assume a thickened, velvety appearance, the granulations first becoming visible on subsidence of the swelling and intense hyperæmia. Usually more than one member of a family is affected with this form of trachoma, and when it occurs in asylums or residential schools many of the inmates are apt to contract the disease. There is a class of cases, occurring usually in children of from five to fourteen years of age, on which on excision of the lids a mass of pale, spawn-like granulations is thrown into view embedded in the slightly hypertrophied conjunctiva. In these cases the annoyance experienced by the patient is slight. There is little secretion. This form of trachoma appears sporadically. It possesses but little of the contagious nature so pronounced in the form where the secretion is copious. The contagiousness of trachoma is probably in direct proportion to the amount of the secretion.

In this early stage, which may be termed the first stage of trachoma, the follicles are discrete. They consist of aggregations of lymph-corpuscles, situated immediately beneath the epithelium, having a more or less marked fibro-vascular capsule, and traversed by very fine trabeculæ of connective-tissue fibres.

As the disease progresses, the follicles or granules coalesce; this occurs particularly in the upper third of the tarsal conjunctiva, but is not confined to this region. The conjunctival surface becomes reduced in area. Cicatricial patches and bands appear. From friction on the cornea, superficial keratitis, deep ulcers, and pannus result; there is more or less shortening of the palpebral fissure. This may be termed the second stage.

The third stage is essentially one of atrophy, and shows rather the result of trachoma than trachoma itself. The surgical procedures necessary for the correction of the results of trachoma, as found in the third stage, will not be considered in this paper, and, consequently, need no further mention.

The contagious nature of trachoma, considered in connection with the facts elicited by Michel, Sattler, and others, in their bacteriological researches, furnishes very strong evidence of the microphytic origin of this disease. If we accept the above statements as facts concerning the structure of trachomatous tissue, and admit it to be of germ origin, we may easily formulate

the general indications for treatment. 1. The obnoxious tissue should be removed, if such a thing be possible without producing too much deformity of the lid. 2. The germs instrumental in the production of the disease, if any remain, should be destroyed. 3. The after-treatment should be so conducted that a smooth surface will result. Procedures that are purely mechanical may fulfil the first indication; but mechanical must be aided by therapeutical measures to fulfil the second and third general indications. It may be claimed that the plasma of the blood is sufficiently germicidal to destroy what trachoma germs may remain after mechanical means have been employed to remove trachomatous tissue. This may have a grain of truth in it, but the fact remains that after purely mechanical means have been employed, recurrences of trachoma in the operated eyes are not uncommon. It is a fact recognized by all observant surgeons, and demonstrated by laboratory experimentation, that bruised or crushed tissue forms a most favorable nidus for the development of micro-organisms; therefore it is not only logical, but actually necessary, that a germicide be employed after the surgical procedure, to render the conditions for recovery most favorable. Recurrences should not occur, since their prevention is fully within our power.

In the first stage of trachoma the method by expression is by far the best to pursue. Since it does not imply loss of conjunctiva, it is far better than excision. It is efficient and speedy, therefore better than the destruction of individual follicles by the cautery, removal with the curette, etc. Theoretically, and I believe it must prove so experimentally, it is better to remove the contents of the follicles than to crush them into the tissue. Because of this, I prefer to use Noyes's forceps, regarding it as the best forceps made. In the employment of expression I have found that the removal of the contents of the follicles is facilitated by a superficial scarification of the apices of the elevations, the incisions running parallel to the margins of the lids; I consequently scarify in these cases. After the expression I am in the habit of introducing a germicide into the bruised tissue, using for this purpose an ordinary tooth-brush loaded with a solution of sublimate, one to five hundred or one to one thousand. After the treatment as above described the patient may be treated as an out-patient, but it is better to keep him in the wards of the hospital for a few days. In the latter case a compress bandage should be applied. After twenty-four hours the conjunctival sacs should be washed with a weak sublimate solution. If there is a tendency to puffiness of the lids the bandage should be reapplied.

Swelling due to traumatism is much more easily controlled by a pressure-bandage, and is more comfortable to the patient than are cold applications or medicinal applications of any sort. The tendency to swelling of the lids will have disappeared in from thirty-six to forty-eight hours, when the bandage may be removed. But little reaction follows the operation.

To prevent the formation of adhesions between folds of the conjunctiva, it is well to sweep a probe through the conjunctival sacs at intervals of



twenty-four hours for a few days after the operation. Mild antiseptic washes and the occasional application of a one-per-cent. solution of the nitrate of silver as recovery advances will suffice to effect a complete cure without deformity.

This form of treatment, which meets all the indications, has proved in my hands to be most satisfactory in the *first* stage of trachoma; in the *second* stage of trachoma it may be considerably improved upon. Sclerosed mucus of trachomatous tissue will not be squeezed out, consequently if we would cure these patients we must employ other methods. The sclerosed tissue has been cut away by Rush, Heistrath, Jacobson, Vossius, and others, curetted away by Sattler, and attempts have been made to brush it away by Manolescu. The form of treatment that in my hands has given greatest satisfaction in this class of cases is that advised by Darier and Abadie, the method known as "grattage." I have employed it now in quite a large number of cases, and have yet to see a patient on whom I have operated who has not been benefited. The greater number of cases have been virtually cured.

For the performance of the operation I have devised a scarificator and

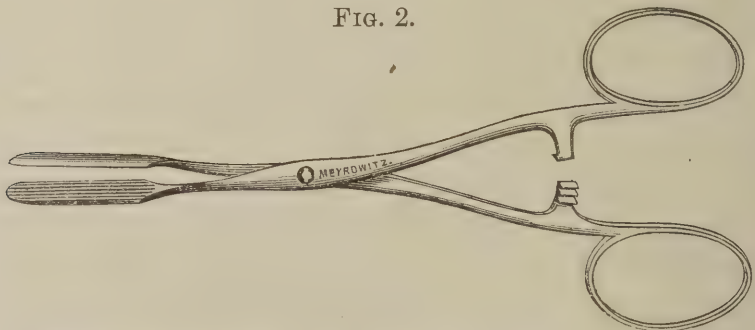
FIG. 1.



Scarificator devised by the author for the treatment of trachoma.

a forceps. The scarificator consists of a handle into which three movable blades are set. The blades are about one inch in length, and are placed parallel to each other and about one-sixteenth of an inch apart. They may be removed for cleaning at will. A guard to regulate the depth of the

FIG. 2.



Forceps devised by the author for the treatment of trachoma.

incision is supplied with the instrument. The forceps consists of a scissors-handle with catch. The blades are two-sixteenths and three-sixteenths of an inch wide respectively. The opposing surfaces are grooved in their long axes. The blades are of equal thickness from point to shank, and are seven-eighths of an inch in length. In use, the narrow blade is placed on the conjunctival surface, the broad blade in the integument, parallel to and at

the margin of the lid. Eversion is performed by rolling the lid over the forceps.

The operation briefly is as follows: The patient is anesthetized. If the palpebral fissure is shortened by cicatricial contraction, a free canthotomy is made, the margin of the lid is now seized by the forceps, and the lid is forcibly everted. This exposes and puts on the stretch the whole conjunctival surface. The trachomatous tissue is then scarified to about two-thirds of its depth, the incisions running parallel to the margin of the lid. The surface is then rubbed over with the back of a scalpel, or the conjunctiva is manipulated with the trachoma forceps for the removal of movable trachomatous tissue. After this the conjunctiva is brushed quite vigorously with an ordinary tooth-brush which carries a solution of the bichloride of mercury, one to five hundred. After thoroughly introducing the bichloride by means of the brush, the canthotomy is converted into a canthoplasty, if permanent enlargement of the palpebral fissure is desired. The surface of the conjunctiva is cleansed and a compress bandage applied. The previous remarks regarding traumatic œdema apply here. Severe as the operation may appear, the reaction is usually very slight. The after-treatment is very important. It consists in preventing adhesion between folds of conjunctiva by occasionally sweeping a probe through the conjunctival sacs, and by the application of antiseptic and astringent solutions as required. It is customary to apply a solution of sublimate, one to five hundred, to the conjunctival surface, every twenty-four hours, for from three to eight days after the operation; bathing with a solution of boric acid, three per cent., two or three times daily, and the application of astringents as required. The treatment may produce the result desired in three weeks; it may require three months. However, a satisfactory result is the reward in almost every case, which cannot be hoped for in similar cases by other methods of treatment. The following is a case in point:

Nellie Lyons, New York, aged twenty-eight years, came to my office on March 19, 1892. She has suffered from trachoma of the conjunctiva of the left eye for three years. The patient has been under the care of Dr. D. B. St. John Roosa for about two years, having been an inmate of the Manhattan Eye and Ear Hospital for three weeks. About two months before seeing me she had been operated on for trachoma with the roller forceps by Dr. Herman Knapp. When first seen the conjunctiva was rough; there were distinct trachoma follicles in the tarsal conjunctiva, and a few in the retro-tarsal folds. There were superficial keratitis and vascular pannus, with narrowing of the palpebral fissure, intense photophobia, and profuse lachrymation. I advised the treatment described above. The patient was admitted to the New York Eye and Ear Infirmary on my service, and the operation was performed on March 22. At the end of two weeks the patient was discharged with the lids much improved; there was still some roughness. The pannus and superficial keratitis were much improved. She has since been treated as an out-patient at my office, coming twice or three times a week. When seen last, June 2, the lids were smooth, the cornea free from irritation; no photophobia. Patient experiences no discomfort. She has resumed her position and is virtually cured.



The presence of corneal ulcers, or pannus, does not contra-indicate this plan of treatment. Corneal ulcers heal rapidly and pannus gradually disappears. Darier and Abadie treat the cornea by brushing in the solution of sublimate in cases of dense pannus, with, according to their reports, the most happy results. In two or three cases I have destroyed the vessels at the circumference of the cornea, when vascular pannus was marked, using the galvano-cautery for the purpose. The pannus was favorably affected by this procedure, but was not entirely done away with.

I wish to emphasize the necessity of careful and persistent after-treatment. Without it failures will result and the operation will not meet with the favor that it deserves.

Experience has led me to the following conclusions: (a) In the first stage of trachoma the most efficient mode of surgical interference is that of expression, combined with superficial scarification and the introduction of a germicide by the use of a brush. (b) In the second stage, where surgical interference is advisable, the treatment known as "grattage," combined with expression in some cases, canthotomy or canthoplasty, if necessary, gives the most satisfactory results. (c) The operations as above advised convert a contagious into a non-contagious condition, and the patient may be admitted to the wards for ordinary surgical cases, without fear of infection.

For some of the data relating to the history of the surgical treatment of trachoma, I am indebted to Sattler, *Zeitschrift f. Heilk.*, Berl., 1891, p. 45.

For record of cases and further discussion, see Weeks, *New York Medical Journal*, October 24, 1891.

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## THE COMPARATIVE MERITS OF INGUINAL AND LUMBAR COLOTOMY.<sup>1</sup>

BY JOSEPH M. MATHEWS, M.D.

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THE only excuse I have for consuming your time on this subject is that much has been written of late concerning colotomy, but as far as the preference goes it seems to be all on one side,—in favor of the inguinal operation. It appears that we have "fads" in surgery as well as in society. A society "fad" will die in a given length of time in order that a later one may take its place; a surgical or medical "fad" will be short-lived unless it has sufficient merit to support it. Many of them have been tried but found wanting. To-day the "fad" in colotomy work is in doing the ingui-

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<sup>1</sup> Read in the Section of Surgery at the Forty-third Annual Meeting of the American Medical Association, at Detroit, June, 1892.

nal operation. Has it sufficient merit, when contrasted with the lumbar operation, to supersede the latter, or, indeed, hold its own? I have been chided a little by my surgical friends for still doing the lumbar operation in the face of such strong advocacy of the "easier and simpler operation." Really, some would have us believe that to do the operation in the loin smacked of old-fogyism, and others consider it quite obsolete. But it must be remembered that it was the inguinal, and not the lumbar, operation that fell into disrepute with good surgeons, and that it is really just recently resurrected, and in truth anything resurrected never did seem to me quite so good as a thing that never had died.

As a reminder, you will permit me to say that the iliac or inguinal operation was suggested by Littré, in 1710, not as a method of relief for cancer of the rectum, as so often practised in the present day, but for the relief of infants born with imperforate bowel. This idea of Littré's was carried into execution by Pillore, in 1797. It was in 1796 that Callisen proposed the lumbar operation, but it did not go into effect until 1839. Now some would have us believe that the inguinal operation was of very recent date, and that this *new* (?) operation was rapidly displacing the old one; but it will be observed from these dates that it is nearly two hundred years old, and that the lumbar operation was not done for about forty years after the inguinal had been practised. It is worthy of remark here that colotomy was not looked upon with much favor until within quite a recent date. It is also a matter of history that the lumbar operation stood the test of time much better than the inguinal. Now, I desire to state, before attempting to argue the merits or demerits of either operation, that I am not a very strong advocate of colotomy at best, which means with the best indications for doing the operation. In a paper read before the International Medical Congress (Surgical Section) in 1887, entitled "When is Colotomy Justifiable?" I gave the following as my conclusions:

1. I do not believe that colotomy is justifiable for cancer of the rectum when such growths can be excised.

2. In strictures or obstructions of the rectum, located within three and one-half inches of the external sphincter muscles, colotomy should not be done.

3. The operation is not warranted in cases of ulceration of the rectum, even when accompanied by strictures, if they are within reach of the finger.

4. In cases where the operation is looked upon as a *dernier ressort*, I do not think it should be performed, except for total obstruction located *above* the reach of the finger, and not *malignant*.

In looking back at these conclusions, and that too after seeing much written in favor of the operation, and doing it myself, I do not see that I have anything to take back. Since Kraské has given us his admirable suggestions for the removal of the rectum, I am more inclined than ever to deal *locally* with all affections of this portion of the gut, and avoid, as



far as possible, the disgusting operation of colotomy. My reasons for the conclusions as given herein are:

1. That the operation does not materially prolong life.
2. Admitting that life could be prolonged, I doubt the advisability of the operation.
3. In many cases the operation hastens a fatal termination, outside of any danger in doing the operation.
4. That pain is not relieved by the operation, and that, in many cases of cancer of the rectum, pain is not a factor at all.

If I was asked now what the indications for colotomy were, I would answer:

1. In cases of cancer of the sigmoid flexure, not of the rectum.
2. In syphilitic ulceration, accompanied by stricture, either in the sigmoid flexure or the unattached rectum.
3. In cases of recto-vesical fistulæ.

In cases of congenital malformation of the rectum I would not advise the operation, but would do it if asked by those nearest to the child in kinship.

In that this phase of the question does not come within the province of this paper, I will not discuss either the conclusions or the assertions herein mentioned, but make the bare statement suffice.

To come, then, directly to the point. If the operation of colotomy is decided upon, which of the two, the inguinal (or iliac) or the lumbar operation, is preferable? With all deference to the distinguished gentlemen who advocate the iliac operation, I must say that I prefer the lumbar. I am very well aware of the fact that I am talking against great odds, and admitting that there is strength in numbers, yet there is somewhere in the statute books a declaration that the "minority must be heard." You will permit me, therefore, to give some reasons for the "faith that is in me," and to answer, if I can, some of the arguments adduced in favor of the inguinal operation.

First, it is asserted that it is much easier to do a colotomy in the inguinal than in the lumbar region.

In answer to this I must say there is some truth in the statement; however, it will not always hold good. Admitting, for the sake of argument, that it is the easier of the two operations, I would answer that this is no argument to a surgeon. It might be easier for one to extract a stone from the bladder by the perineal section, but it may be much better to do a suprapubic cystotomy. A surgeon should be competent to do either operation and not put forth his inability as an argument in favor of one or the other. If it is contended that it is a *safer* operation, this would materially alter the case. But is it a safer operation? I know that the advocates of the inguinal operation say that it is a very simple affair. To read the off-hand description of it, one would be so convinced, but the surgeon who has done many of these operations will verify my statement that a colotomy

done in the iliac region is sometimes more difficult than one done in the right or left loin. It is a fact that, in the majority of cases, when the cut is made into the peritoneum, the small intestines present, and that when they do, a search must be made for the colon. This has been my experience when doing the operation upon either the cadaver or the living subject. Now, this search is, of course, within the peritoneal cavity. How difficult this search is I have only to appeal to those who are in the habit of doing this operation to testify. As regards the simplicity and the safety of the two, I think that the anatomical characteristics can determine the matter. One is *extra*-peritoneal (lumbar); the other is *intra*-peritoneal (iliac).

With all the assertions and declarations of many as to the perfect safety in dealing with the peritoneum, I must again affirm that if two operations are offered to accomplish the same end, one that requires the cutting into the peritoneal cavity and the other accomplished outside the cavity, I believe the latter preferable,—in other words, that it is safer not to cut into it than to cut into it. Especially is this true when a long and sometimes a rigorous search has to be made for the colon. The lumbar operation is *extra*-peritoneal, and has been so regarded from the time it was first suggested. I am acquainted with the fact that Mr. Herbert Allingham tries to prove that the cavity is oftener opened than is supposed; but I have no reason to dispute so eminent an authority as Mr. Thomas Bryant, when he says, “In the one hundred and seventy lumbar colotomies that I have performed, I have but twice, knowingly, opened the peritoneal cavity.” Now, it might be argued that, since antiseptic or aseptic surgery has come into vogue, the dangers of the iliac operation have been materially lessened. This, of course, we would have to admit in a general way at least; but I would submit, better antiseptic surgery can be practised in doing the lumbar than the inguinal operation, for in the former we are not working in the cavity, and said cavity is a sacred precinct against antiseptic solutions, which would debar their use in the inguinal operation. What good might accrue in this scientific surgery would be in the lumbar operation. In doing the inguinal operation it is frequently necessary to enlarge the opening enough to admit two fingers instead of one, at least this has been my experience, for with one finger it is impossible either to find the colon or to handle it after it is found. And one point I wish especially to impress: in drawing down the colon, which often lies high up towards the navel, great care must be taken not to twist it. Some surgeons in doing this operation have been forced to use rectal insufflation of air in order to find the colon. I have never, however, had to resort to this. I need scarcely allude to the fact that it is sometimes difficult to draw the colon out because of its distention by gas or fæces, or because of a diseased or contracted mesentery.

In this connection I may mention that which, to my mind, is a serious objection to the inguinal operation,—viz., if it has been done for malignant



disease, the cancerous infiltration may have extended to the wall of the colon, and the operation in so far as the site is concerned would have to be abandoned. Again, if the mesentery is in a very contracted state, it would prevent the establishment of an artificial anus. To the lumbar operation none of these objections can be preferred, and I must maintain that they outweigh any and all of the objections that have been preferred against it.<sup>1</sup>

In the first place, in doing it we are not dealing with the peritoneal cavity, Mr. Allingham to the contrary notwithstanding; hence we are not running the risk of handling the colon in a diseased state. The colon usually presents in the lumbar operation, is easily secured and attached: there is no danger in dealing with a bowel infiltrated with cancerous material, because we are distant from the site of disease; no danger of twisting the bowel on itself; nor, indeed, is the operation followed by any of the serious complications which attend the one in the groin.

I shall not take your time to answer the following objections to the lumbar in favor of the iliac operation, for they have all been forcibly and with great reason answered by Mr. Bryant<sup>2</sup> in the Bradshawe lecture in 1889.

1. That by means of the abdominal incision the diagnosis in obscure cases may be verified before the bowel is opened.

2. That by it there can be no possibility of the surgeon mistaking the small intestines, duodenum, or stomach for the large intestine, and that abnormalities of the colon do not mean failure of the operation, since the abdomen can by the inguinal operation be carefully searched.

3. That the bowel can be readily drawn out of the wound and fixed firmly to the skin.

4. That in lumbar colotomy there is frequently so much prolapse of the gut as to give rise to serious trouble.

5. That the inguinal wound is far more convenient to the patient for purposes of cleanliness as well as for the adjustment of pads to guard against the escape of the fæces and flatus.

In summing up I will be pardoned in saying that, from a theoretical view and by a practical demonstration in my own practice, I am forced to believe that the inguinal operation has not and should not supplant the lumbar operation as a surgical procedure.

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<sup>1</sup> Treves: statistics compiled in 1884: thirty-eight in every one hundred cases of lumbar operations and forty-six in every one hundred cases of iliac died within twenty-one days after the operation.

<sup>2</sup> Bryant: sixty-two per cent. of lumbar and fifty-four per cent. of iliac operations were successful.

*PHENACETIN,—SOME OF ITS EFFECTS IN THE NERVOUS SEQUELÆ OF GRIPPE.<sup>1</sup>*

BY WILLIAM F. HUTCHINSON, M.D.,

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THE epidemic of grippe which occurred during the past winter exhibited some marked differences in its course as compared with previous seasons. In New England, for instance, we were brought to face novel symptoms difficult to treat successfully, and in most instances passing into pathological states which have remained permanent thus far,—at least still under treatment. In the tropics, where I spent the winter, I found the same train of symptoms and sequelæ existing as in America, with even a greater severity and a higher death-rate. It is interesting to note that while the poison of grippe in the North was developed into pneumonia, and caused a large percentage of deaths in that way, Southern lands almost enjoyed immunity from fatal cases, although the disease was perhaps equally prevalent, the beneficent climate of the winter months with its unvarying heat-range and steady dew-point serving as a complete protection to the lungs, and there was little grippe in summer. When, however, nervous centres were affected in place of respiratory, and nervous derangements took the place of pneumonia, climate was no longer of any avail, and, as I write, May, 1892, there is probably a larger percentage of cases terminating fatally in the southernmost islands of the West Indies from nerve complications than we have ever lost in the North. I learn that in Trinidad, at Port of Spain, there were more than six hundred cases at one time within a month, with a large number of deaths from various neuroses. Secondary to these, developing directly from them, we have seen so many psychic affections that grippe is now recognized as cause sufficient therefor; there is now question of treatment only. Mental equipoise has been disturbed to such an extent that crimes of magnitude have been committed under its influence, and I have recently sent a woman to an insane hospital whose unsettled mental condition I believe to be wholly dependent upon a severe attack almost two years ago.

Among special symptoms accompanying the neurotic side of grippe may be enumerated insomnia, loss of appetite with steadily progressive physical debility, perversions of sense, impairment of cardiac nerve-tone, hallucinations, delirium, and insanity. Paralyzes of certain centres are not uncommon, notably those for the legs and the sexual organs. Formication and

<sup>1</sup> Read before the meeting of the American Medical Association at Detroit, June 9, 1892.



exaggerated reflexes accompany those earlier stages wherein treatment is likely to be successful, and in every instance with which I have been familiar there have been pain and skin hyperæsthesia.

It is easy to make a list of remedies, such as total rest, foreign travel, highly nourishing, digestible diet, and competent nursing; but a large part of the average doctor's list of patients is made up of poor people, to whom such luxuries are as unattainable as a steam yacht, and they must be replaced with what is within reach. Rest comes to such men and women only when their bed imprisons them, and careful nursing from a wife who has half a dozen little ones to look out for in a small tenement is out of the question. We must look for substitutes; find some artificial rest which will make the tired mother's task lighter by reason of a more quiet patient. In such a search opium and its derivatives must be barred from the first. When, in the case under consideration, any of them are administered in sufficient doses to procure sleep or relief from pain, disturbance of general function and subsequent reaction are too pronounced to permit of continuance, and depression too profound to allow them to be continued or even repeated. Something is needed that can be given for a length of time without increase of dose or loss of effect, for neuroses following grippe are usually of long duration.

Sulphonal produces sleep, but does not relieve pain. Antipyrin and antifebrin disturb the heart-action to a degree occasionally alarming, and, in a few cases, have caused temporary delirium. Chloralamid is better, but loses effect after lengthy administration. The various preparations of ether are too stimulating to circulatory centres, and choice seems to lie between such vegetable narcotics as hyoscyamine, hyoscin, and the like, and phenacetin. In a few instances I did well with a combination of hyoscin and monobromide of camphor, but in a majority the phenol derivative has proved the best. Indeed, were it not for a peculiar quality which phenacetin possesses and sometimes brings into action, that of producing violent perspiration, it would be the ideal hypnotic and pain-killer; and with this defect, which I have usually been able to correct by combining it with quinine sulphate, in my opinion, phenacetin stands first in the list of remedies for relief of insomnia and pain in the permanent neuroses following grippe. No general dose can be given, but I consider the drug harmless in any quantity that is likely to be found necessary, and have given ten grains every two hours for two days with no bad result. Phenacetin may be combined with iron for long administrations, and, in that form, presents the best tonic with which I am acquainted for the adynamic conditions of long-continued nervous prostration, from whatever cause.

## *TONSILLITIS AS AN INITIAL SYMPTOM OF ACUTE RHEUMATISM IN THE ADULT.<sup>1</sup>*

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Fellow American Academy of Medicine.

IN presenting this subject I am actuated not especially by the novelty of the subject, but by the uniqueness of the case the history of which is herein given, and by a desire to direct attention to the two important subjects of diagnosis and treatment. It is well known that tonsillitis not infrequently occurs during an attack of rheumatism, especially in persons of a scrofulous diathesis, but it is only as an introductory symptom that it requires diagnostic skill and becomes of importance in determining the character of treatment.

I wish now to give the history of a succession of cases in the same individual. In giving the history of these attacks I shall present it in the order in which they occurred. I treated the patient in the last attack only. The history of the former ones was obtained from the patient. He is now thirty years of age. At the age of seventeen he had an attack of non-suppurative tonsillitis, lasting about two weeks. It was immediately followed by acute articular rheumatism of two weeks' duration. At twenty years of age the patient had an attack of suppurative tonsillitis which lasted two weeks. Acute rheumatism again promptly followed the tonsillitis. This attack of rheumatism was very severe, protracted, and general. At twenty-nine years of age the patient experienced a third and severe attack of suppurative tonsillitis, which lasted four weeks. This attack of tonsillitis, as in previous instances, was followed by rheumatism, which was severe, general, and of five months' duration. At the age of thirty, and in February of this year, the patient had his fourth attack of suppurative tonsillitis, which lasted about one week. This attack, as usual with this patient, was followed by other symptoms of inflammatory rheumatism, and was pretty general, many of the joints being more or less affected. The duration of the attack, however, was comparatively short. The patient was confined to his bed one week, and to the house two weeks. There was not complete recovery, however, for several weeks, which I attribute to the patient resuming work too soon.

A few observations on this recurring disease may be of interest. The individual is a strong young man. His occupation has been varied. At the time of his first attack he was a laborer in a rolling-mill. For the last year

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<sup>1</sup> Read by title in the Section of Laryngology and Otology at the meeting of the American Medical Association, held at Detroit, June, 1892.



he has been engaged in the insurance business, doing office work. He did not inherit a rheumatic or serofulous diathesis. Neither did he inherit any predisposition to throat affections. He cannot in any instance recall any exciting cause, such as exposure to cold or damp. He has never had tonsillitis without rheumatism following it. He has never had rheumatism without tonsillitis immediately preceding it. The tonsillitis has been suppurative in the last three attacks. The duration and severity of the attacks of rheumatism have been in proportion to the duration and severity of the attacks of tonsillitis. In no attack have there been any subjective symptoms of rheumatism prior to the subsidence of the tonsillitis. Neither were there any objective symptoms aside from those characteristic of the tonsillitis. In the first attack there was a mild throat affection and a light and short attack of rheumatism. In the succeeding two instances both the tonsillitis and rheumatism were severe and prolonged. In the last attack both diseases were moderately severe, but of brief duration.

I desire now to call your attention to the case in a diagnostic and therapeutic point of view. Ability to recognize the exact character of the tonsillitis is especially desirable, for it would impress the patient with the physician's keen and far-reaching insight into his disease, and also afford an opportunity to try abortive treatment. When called to treat the patient for tonsillitis, he asked me to give him also preventive treatment for rheumatism, saying that rheumatism would develop as soon as recovery from tonsillitis had been accomplished, and justified his prediction by his experience. The patient made the diagnosis, and I had only to confirm it. The disease was of two or three days' standing, the patient having come from a neighboring town. Patient stated that his attention was first attracted by pain which accompanied the act of swallowing. Constitutional and local symptoms followed; other points of differentiation were the more general inflammation, hyperæsthesia, and swelling of the peritonsillar tissues, and strictures of the neck; pain more diffused on the side on which the tonsil was inflamed, and the very rapid shifting of the disease, and pain from one tonsil to the other. The acceleration of the pulse and the elevation of temperature, which ranged from  $101^{\circ}$  to  $103^{\circ}$ , were less marked than ordinarily obtains in idiopathic tonsillitis of equal severity.

At this juncture, and before speaking of treatment, I will merely allude to the etiology of rheumatism, without any attempt to discuss the various theories for it. Whether the causative agent is developed within the body or enters it from without, in this, the germ era of medicine, with the history of the above and similar cases in mind, one cannot but feel a great deal of assurance in assuming that the causative agent is a germ or substance which enters the body through the crypts of the tonsils, lodging there and producing inflammation, or, if entering the body elsewhere, or developing within, that the diseased substance collects in or concentrates its force on the tonsillar tissues. With this view of the etiology in the above case, it would appear that proper local treatment would be fully as important as constitu-

tional treatment. Therefore, in the above case, I determined to abridge the cause of the tonsillitis, hoping thereby to modify the course of the rheumatism. In what measure I succeeded may be fairly judged by the results already mentioned. Treatment consisted mainly of free and repeated lancing of the tonsils, with the use of warm water to promote bleeding, anodyne and antiseptic sprays, prompt and complete evacuation of pus, which formed in one tonsil only, with saline cathartics, and mild anti-rheumatic treatment. I learned from the patient that depletion had not been practised in his former attacks, and the abscesses were allowed to open spontaneously. We cannot wonder, then, at the prolonged and severe attacks of rheumatism that followed.

In view of the foregoing facts, I am compelled to believe that in cases of rheumatism in which tonsillitis is an antecedent symptom, the disease is at that stage largely local, and affording exit for the disease-germs and their morbid products by free depletion and early evacuation of pus when there is suppuration will aid marvellously in abridging and mitigating the subsequent attack of rheumatism, if not entirely prevent it.

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## *PRIMARY INFLAMMATION OF THE MASTOID CELLS.*

BY LEARTUS CONNOR, A.B., M.D.,

Detroit, Michigan,

Ophthalmic and Aural Surgeon to Harper Hospital, to Children's Free Hospital, etc.

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SUPPURATIVE disease of the ear usually begins in the middle ear and extends from this centre outward, inward, backward, or upward. It may reach this centre from the upper pharynx along the Eustachian tube, the throat being the starting-point of the morbid process. Irregularly it may begin at other points and extend along different routes. These exceptional cases are relatively rare, and so liable to be overlooked, unless their possibility is constantly borne in mind, that I desire to place upon record the following case of primary inflammation of the mastoid cells.

Miss R. T., aged ten years, was brought to me on March 11, 1891, for relief from a severe and persistent pain in the right side of her head, about and below the ear. Her mother said that for nearly two months the child had complained of a pain in this region, which was called by the family physician neuralgia. Though the child had gone to school, her appetite had disappeared, she was sleepless or very restless at night, crying out with pain, grinding her teeth constantly as soon as she began to doze. There had been a little swelling in the neck just below the right ear, and a great deal of pain, without tenderness, in the same region. There was no history of deafness or pain distinctively located in the ear proper. The day previous to her visit to me a slight swelling appeared just behind the right ear.



On examination, I found the hearing about the same in each ear for watch, tuning-fork, and Politzer's acoumeter. The membrana tympani of the right ear was normal in color, in mobility, and lustre. The walls of the external meatus were also normal in all respects. Her throat and nares were quite natural in every way. There was a slight swelling behind the external ear. To this it was ordered to apply three leeches. The bites of the leeches continued to bleed for several hours, with the result of enabling her to sleep better, but the pain still remained and the general state of the patient was unaltered. Hence on the following day I freely divided the tissues behind the ear by a vertical incision a quarter of an inch behind the ear for a distance of an inch and a half. Finding bare bone at the bottom of this incision, I enlarged the wound in the soft tissues, and penetrated the mastoid. This was found full of pus, the external wall having been greatly thinned. The wound was thoroughly cleansed by peroxide of hydrogen, and the external ear douched with very hot water for fifteen minutes every four hours. By attention to her diet, and the administration of small doses of quinine frequently, the patient made a satisfactory recovery, though it was more than two months before the wound completely healed. During all this period neither the middle nor the external ears were affected by the mastoid disease, as was demonstrated by repeated observations. The case was a clear-cut primary disease of the mastoid cells from beginning to end. Whether it would have opened into the middle or external ear or through the external wall of the mastoid it is impossible to tell. Fortunately for the patient, external relief was afforded before nature had resorted to either of these outlets. This is the only case in my experience in which I was absolutely certain of primary mastoid disease.

Dr. John F. Fulton<sup>1</sup> reports one case of primary suppuration of the mastoid cells, and one which resembled it in symptoms, but which was a sclerosis of the mastoid walls. Both cases were relieved by the opening into the mastoid. His case of suppurative mastoiditis was briefly as follows: A young lady, aged nineteen, began to complain of slight pain behind her ear which daily increased in severity, at times extending over the whole side of the face and down her back, neck, and shoulders. This continued for weeks, until she became low in spirits, emaciated, careworn, and generally run down in health. There was no indication of any disease of the middle ear or Eustachian tube. The drum-head presented a normal appearance, and the acuteness of hearing was normal. The external ear was also normal. The mucous membrane of the posterior nares and Eustachian tubes was normal. At times she complained of slight tinnitus and dizziness. Her temperature was 99° F. There was no swelling or tenderness over the mastoid. After some weeks the patient's condition became unbearable, and she consented to an operation. At this date a slight tenderness and redness appeared just behind the ear. On

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<sup>1</sup> Transactions of the Ninth International Medical Congress.

opening the mastoid quite a large abscess was found; the lining membrane of the abscess was smooth, red, and tumefied. There was no evidence of caries.

The other case was that of a young man, aged twenty-two, who, after suffering from similar symptoms, was found to have a sclerosis of the mastoid cells.

Dr. David Webster<sup>1</sup> reports three cases of primary inflammation of the mastoid cells. Dr. Roosa<sup>2</sup> reports a similar case.

Cases of primary inflammation of the mastoid process without primary inflammation of the periosteum or inflammation of the middle ear have been described by Drs. Buck,<sup>3</sup> C. R. Agnew, J. Orne Green,<sup>4</sup> Hartmann,<sup>5</sup> and others. Gruber says that he has never seen such a case of circumscribed primary inflammation of the mastoid process.

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## *TREATMENT OF ACUTE ŒDEMA OF THE LARYNX, WITH REPORT OF CASES.<sup>6</sup>*

BY AUGUSTE RHU, M.D.,

Marion, Ohio.

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IN order to call your attention more closely to this dangerous laryngeal affection, I may be pardoned for giving at some length the history of a case which has recently occurred in my own practice:

Frank Johnson, Esq., age thirty-six, a hotel and livery manager, of strong, robust physique, short stature, short neck, and an abundance of panniculus adiposus, height five feet six inches, weight one hundred and sixty pounds, had an attack of la grippe, complicated with a moderately severe acute croupous pneumonia, involving the left lung. In six days he was convalescing finely, when he left for his place of business, and remained the greater part of the day away from home. I had told him to remain in-doors for a week or more, on account of the unusual depression and debility present, especially so as he was very susceptible to taking cold, and had had frequent attacks of pneumonia. On that day he got wet feet and contracted a severe cold, affecting his throat.

On the evening of February 12, 1892, I made my first call and prescribed for the sore throat, which presented the following condition: A husky voice, cervical and submaxillary glands swollen and painful to touch, deglutition causing pain, running up into the ears and angles of the jaws,

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<sup>1</sup> Archives of Otology, vol. ix., No. 1.

<sup>2</sup> Ibid.

<sup>3</sup> Medical Record, 1883.

<sup>4</sup> Transactions First Congress American Otological Society.

<sup>5</sup> Zeitschrift für Ohrenheilkunde, vol. vii.

<sup>6</sup> Read before the Ohio State Medical Society, at Cincinnati, Ohio, May 4, 1892.



the mucous membrane of the nose and naso-pharynx highly inflamed and flannel-red in appearance, especially so over the palato-glossus and pharyngii muscles and uvula, which were quite œdematous and tender, so much so that a thorough laryngeal and post-rhinal examination could only be conducted with considerable trouble, so tender was the pharynx. The following morning I found my patient no better; in addition, however, I found the posterior wall of the pharynx œdematous, the posterior pillars of the pharynx extremely inflamed, the voice painful and veiled, with a tendency to hawking, and the patient stated that he was affected with great fear. The mucous membrane of the larynx was already in an active state of inflammation, so that on the evening of the second day he had a moderately severe laryngo-pharyngitis, complicated by a retro-pharyngeal abscess formation, behind the œdematous posterior pillars of the pharynx, involving the left side mostly; this, in addition, caused still more difficulty in deglutition and interference with nasal respiration, compelling him to breathe with his mouth open and head thrown back; he complained much of the lancinating pains shooting up into his ears; the pulse was weak and easily compressible. Thus far the treatment had consisted of antiseptic sprays and gargles, small doses of anodynes, complete rest in a warm room, with inhalations of moist vapor impregnated with compound tincture of benzoin, and salines every morning. On account of the grèat systemic depression, I gave the vaso-motor stimulant of strychnine and belladonna for their constitutional effect, as required in his case. On Sunday morning, the third day of his illness, I found him greatly improved locally and systemically, excepting a hyper-sensitiveness of the pharynx, which made a further examination impossible. In the evening I found him no worse, and told the family that all was progressing favorably thus far, and that I would expect a spontaneous rupture of the retro-pharyngeal abscess during the night, which would bring all the alarming and depressing symptoms to an end. Should the abscess fail to rupture spontaneously I would have to aspirate the same the following day; at any rate I regarded my patient in a fair way to recovery, barring further complications of the oro-pharynx, or rather larynx.

The following morning, about 9.30 A.M., to my great surprise, I found my patient fully dressed in his business suit, down in his sitting-room, where he ordered the furnace heat turned off; consequently he had a chilly room, and said he had had a poor night. On examination, I found there was a dangerous and a rapidly-progressing acute œdema of the larynx, the retro-pharyngeal abscess still unruptured; pulse 120, temperature 99°, marked difficulty in respiration, due to partial laryngeal stenosis. He said he was very nervous, felt chilly, but strong enough to dress himself and walk down-stairs and about the room. On inspection, the pharynx was cedematous in every direction, the mucous membrane presenting a dark cherry-red color. I told him to remain quiet, saying that I would return to my office and procure a laryngeal lancet and a retro-pharyngeal trocar,

and return shortly. While in the office gathering the apparatus required for the case, I was hastily summoned,—told to hurry, that something had broken, and that he was nearly dead. In less than five minutes I was again at his side. He was just then feeling somewhat better, when he told me that something had ruptured in his throat. I encouraged him and assisted in wiping away the pus and mucus which were rapidly filling his mouth, myself feeling much encouraged, when he suddenly became cyanosed and fell over in his chair in a semi-conscious condition. I at once scarified the œdematous ary-epiglottic fold : in fact, the laryngeal introitus was closed. In another minute he revived again, only to fall dead from his chair ; and all this in less than ten minutes' time. There was no time for intubation, nor could an emergency tracheotomy have been done ; neither artificial respiration nor any other surgical or medical means known were of any avail at this trying moment.

Within a week after seeing this fatal case, I had two other cases of acute œdema, one in a lady fifty years of age, as the result of a moderately severe attack of catarrhal inflammation of the pharynx, descending to the larynx, following an acute pharyngitis. This patient was a chronic asthmatic, considerably debilitated from a previous attack of la grippe and a resulting aural catarrh. But in this case the treatment was uneventful and successful, in spite of a very severe œdema of the glottis and ary-epiglottic ligament. Hot soda and antiseptic gargles, moist vapor inhalations, antiseptic sprays, and one-eighth of a grain of pilocarpine hypodermically, caused all laryngeal stenosis to disappear within less than an hour.

The third case was a very grave one, and occurred under very trying and unfavorable conditions. A young lady, twenty years of age, possessed of a very fine physique and splendid resisting power, began, as did the two cases noted, with a catarrhal inflammation of the pharynx, and on the second day œdema of the larynx developed so rapidly that I expected the case to have an unfavorable termination. In addition to the local and constitutional treatment employed in the previous cases, I gave her a hypodermic injection of pilocarpine, which aborted the attack in less than ten minutes. In an incredibly short time I had obtained the full physiological effect of pilocarpine, the sialagogue effect being wonderful, and it acted more specifically to evacuate and drain the œdematous larynx than any scarification could possibly have done. The diaphoretic effect was not so great. In fifteen minutes a slight cardiac depression set in, which, however, did not become dangerous, and was successfully combated by belladonna and strychnine.

In the first case the œdema was no doubt a form of solid œdema, which did not subside post mortem, the laryngeal stenosis was complete, and, no doubt, had a post-mortem examination been permitted, we should have found further a sublaryngeal œdema. Such cases, as a rule, are fatal. To intubate or to perform tracheotomy was not possible in the few minutes



remaining, and under such a complication as a retro-pharyngeal abscess. I feel confident that any emergency tracheotomy would have been a useless procedure.

Bayle's statistics of tracheotomy in acute œdema are not at all encouraging, for out of seventeen cases where tracheotomy was done only one recovery is recorded. Sestier's statistics show that out of two hundred and thirteen acute œdema cases one hundred and fifty-eight proved fatal, in spite of tracheotomy having been performed in thirty cases. Glasgow reports two cases of solid œdema of the larynx; both died suddenly, and on post-mortem examination laryngeal stenosis was found, the œdema not having subsided.

In the office of the surgeon-general of the United States army we also find four cases of œdema as the cause of sudden death (Bryan). All my cases began as pharyngitis, which secondarily involved the larynx and extended to the epiglottis and ary-epiglottic folds, and were sequelæ of la grippe; the fatal case, no doubt, was complicated with œdema below the larynx and of the solid kind, each case being also bilateral. The observation that œdema of the larynx is occasionally due to an inflammation extending downward from the pharynx, has been frequently made by Feiber, Bryan, and other equally competent observers. All laryngologists agree that acute œdema of the larynx is an extremely dangerous disease, and frequently sets in with such suddenness that no warning is given, and the patient dies before aid can be rendered.

As to the diagnosis this paper is not concerned. The symptoms of laryngeal stenosis, in connection with the dyspnœa, are so easy of recognition that the merest tyro in medicinal knowledge can have but little difficulty in recognizing the same. From the best statistics which I have been able to consult, I find that with the best modern treatment by specialists there is a mortality of thirty-five per cent. All statistics agree that the disease is a most dangerous one, more fatal to men than to women, and that the greatest mortality occurs in cases between ten and forty years of age; also that any sudden chilling aggravates the laryngeal œdema, and, therefore, to go from the sick-room into a chilly one seems extremely dangerous, as also the drinking of ice-water when the patient is in an overheated condition.

In the management of a case of œdema of the larynx, I would first and always recommend complete rest to the larynx and pharynx, inhalation of the vapor of boiling water impregnated with compound tincture of benzoin or lime-water vapor, hot soda gargles, with antiseptic gargles and sprays of cocaine solution, and slight astringents, scarification of the œdematous parts with the laryngeal lancet, aided by the laryngeal mirror. After the scarification gargle with hot water, which facilitates the expulsion of the fluid. If, in spite of all treatment, the œdema should continue, intubation or even tracheotomy could be done, although the statistics are unfavorable. These measures may not be successful if the œdema be of the solid variety.

Intubation is still on trial, although it has been successfully practised in a few cases. In my opinion, the one great remedy outranking all others in this dangerous disease is the hypodermic exhibition of pilocarpine, on account of its local effect. Gottstein seems to be the one who employed this remedy first, and within a few months a number of successful cases were reported by foreign observers. Pilocarpine will hasten the absorption of the œdema and prevent a recurrence, and in this particular disease it is the one great remedy to carry in your hypodermic case. Another treatment, advocated by Dr. Boris I. Kotelansky (who tried it successfully in severe cases where tracheotomy was refused), consists in the application of cantharides plaster to the neck and inhalations of the vapor from a hot two-per-cent. solution of alum. In place of the plaster he successfully applied cantharidal collodion to an infant suffering with extreme laryngeal stenosis.

Dr. James I. Tucker, of Chicago, Illinois, also reports a case of laryngeal œdema due to toxæmia complicated by œdema of the arm. He treated the case with potassium bicarbonate in full doses, with the hope of removing the œdema, without the desired result. Dr. Waxham inserted a tube, believing that tracheotomy was unnecessary and that scarification would be ineffectual. The case proved fatal on the second day after intubation. Another fatal case occurred quite recently with alarming suddenness in Chicago, Illinois, when the distinguished Judge George Driggs dropped dead in the presence of his wife and the attending doctor, without any warning whatever, and while under the care of the most noted specialists. One of the leading laryngologists of America recently told me of a case where he relieved the œdema by scarification, and cautioned the patient not to be without a vigilant attendant, which advice he, however, disregarded, went to sleep unattended, and later on was found dead.

Gentlemen, I have no doubt you can report cases similar to these. The general practitioner will necessarily meet with a number of such cases, and if he but remember pilocarpine he will feel that he can safely and speedily relieve laryngeal œdema.



# REVIEW OF MEDICINE.

## MEDICINE.

IN CHARGE OF JUDSON DALAND, M.D.,

Instructor in Clinical Medicine and Lecturer on Physical Diagnosis and Symptomatology in the University of Pennsylvania, and Assistant Visiting Physician to the University Hospital.

ASSISTED BY

JOSEPH P. TUNIS, M.D.,

Philadelphia.

### The Treatment of Hæmoptysis. (*Zeitschrift für Therapie.*)

Professor Nothnagel writes of the treatment of hemorrhage from the lungs. He advises that the patient should be kept absolutely quiet, and that he should not even be allowed to speak. The room should be kept at a moderate temperature; he should eat nothing warm, and his food should be of the most readily digestible character. Cold milk should be the diet for two days. If the hemorrhage is moderately severe the case may be controlled by morphine alone, but if this is not successful other remedies must be tried. The internal administration of a solution of sesquichloride of iron and solutions of tannic acid or alum is neither theoretically nor practically useful. The writer has found that ergotin and acetate of lead may be of great service. The former may be given both internally and subcutaneously, and its action is no doubt dependent upon its power of contracting the unstriped muscular fibres of the blood-vessels. The acetate of lead may be given in doses of from one-half to three-quarters of a grain. *Hydrastis canadensis* may prove of use in this condition, but the writer has as yet had no experience with it. Atropine in subcutaneous injections of one-sixty-fourth of a grain has also been employed with advantage. Common salt given in teaspoonful doses can do no harm, and may do good, when no other remedy is at hand. The application of cold externally is of doubtful value, as it is apt to excite coughing, and its constricting power upon the blood-vessels must be very slight indeed. Venesection is not worth consideration.

The Diagnosis of Rectal Disease, with Especial Reference to the Physical Exploration of the Rectum. (*Philadelphia Polyclinic*, June, 1892, p. 97.)

Dr. Lewis H. Adler, Jr., outlines the method of procedure in the investigation of diseases of the rectum. It is important to learn from general questions the location of pain, if that is complained of, and the presence or

absence of discharge. The patient's habits regarding the movements of the bowels and a knowledge of his daily life are also of importance, as well as information in regard to any tendency to tuberculosis or hereditary predisposition to malignant disease. No case should be undertaken or treatment attempted until a thorough local examination has been made. By this a great deal may be learned and a correct diagnosis arrived at. If it is found necessary to introduce the speculum, an anæsthetic should be administered and the sphincters dilated before the instrument is introduced. After describing the various requirements in making these examinations, the writer concludes that in doubtful cases it is important to give an anæsthetic, clear out the lower bowel, forcibly dilate the sphincters, and examine the abdomen bimanually, one finger having been introduced into the rectum and the other hand pressing deeply into the left iliac fossa.

*Achylia Gastrica.* (*New York Medical Record*, June 11, 1892, p. 650.)

Dr. Max Einhorn relates the histories of four cases illustrating this condition and reviews the literature of the subject. The term achylia is derived from *a*, "without," and *χυλος*, "juice." It means, therefore, absence of the gastric juice, which produces atrophy of the stomach. The clinical appearance of these cases has been described by S. Fenwick, Osler, Nothnagel, and others. This condition is a frequent accompaniment of poor nutritive states, such as pernicious anæmia, cancer of the stomach, phthisis, etc. Most of the cases that have been reported have been fatal, as all the functions of the stomach were disturbed and death gradually ensued. For this reason the name of phthisis ventriculi has seemed appropriate for this condition. The duration of the affection seems to be from several months to about two or three years. No doubt the digestion of the small intestines takes the place of stomach digestion. However, this vicarious function of the small intestine is limited, and does not seem sufficient to maintain the nutrition of these patients for any length of time. In the cases which the writer reports he had to treat his patients for an entire lack of gastric juice, and he believes, therefore, that the term which he has chosen is a very suitable one. It is reasonable to suppose that severe catarrhal conditions of the stomach lead to achylia and atrophy. The writer believes that if compensation can be established, either by the vicarious action of the small intestines or by prolonged mastication, the patient may be able to digest perfectly for an indefinite length of time.

*On the Value of Methylene-Blue in Malarial Fever.* (*Bulletin of the Johns Hopkins Hospital*, May, 1892.) By W. S. Thayer, M.D.

After repeating the experiments of Ehrlich and Guttman with this agent, Thayer sums up his work and presents conclusions as follows:

*Summary.*—Out of seven cases, in two, one of tertian and one of quartan fever, a definite cure seems to have been effected. In two more, one a chronic case without fever but with symptoms of vertigo, and one a quotidian



fever, a definite cure may have been obtained. In the former, however, it is highly probable that a more thorough examination would have revealed an occasional crescent, as the disappearance of this variety of organism is not usually so rapidly effected even with quinine; and in the second the examinations of the blood, as already noted, were not so thorough but that the rapid relapse might give rise to suspicion that organisms were still present in the blood on discharge. Of the three other cases, in two, which were chronic cases with hyaline bodies and crescents in the blood, an immediate temporary benefit was noted, followed later by an increase in the organisms and a return of the fever, which in the end yielded rapidly to quinine. In the other, a quotidian, the chills disappeared rapidly and the temperature remained absolutely normal for twenty-two days, but the organisms never entirely disappeared, and at the end of this time the typical tertian ague appeared again.

All of these cases were of such a nature that one might have safely expected no secondary rise of temperature after the administration of quinine, and though in the two cases in which the hyaline bodies and crescents were present the organisms might not have entirely disappeared even in one or two months, we might have been relatively certain of a speedy and entire cure in one case. From these observations the following conclusions are justified:

1. Methylene-blue has a definite action against malarial fever, accomplishing its end by destroying the specific organism; but it is materially less efficacious than quinine, failing to accomplish its purpose in many cases where quinine acts satisfactorily.
2. The action appears to be rapid, the chills disappearing or the temperature, in the remittent cases, falling to normal during the first four or five days; but later, however, if a sufficient number of organisms have resisted the drug, they appear to develop again directly under its influence, causing a return of the symptoms.
3. Methylene-blue seems to have no advantages over quinine which would warrant its further use.

The Diagnostic Value of the Eosinophile Leucocytes in Leukæmia and Hodgkin's Disease. (*British Medical Journal*, July 16, 1892, p. 120.)

Dr. A. A. Kanthack, in an able paper on this subject, writes: We see then that (1) leucocytosis with an increase of the eosinophile cells does not occur in all cases of leukæmia; (2) leucocytosis with an increase of the eosinophile cells is found in other affections besides leukæmia; (3) these cells are by no means specific for leukæmia; (4) judging from animal experiments, they are quite independent of the spleen and lymphatic glands, and probably also of the bone-marrow.

The only logical deduction from these considerations is that the eosinophile cells are of no diagnostic value in leukæmia or Hodgkin's disease.

## THERAPEUTICS.

IN CHARGE OF ALEXANDER D. BLACKADER, B.A., M.D.,  
Professor of Therapeutics, McGill University, Montreal, Canada.

On the Anæsthetic Properties of Cocaine. (*La Médecine moderne, Suppl.*, June 2, 1892.) By Dr. Bignon de Lima.

The following very interesting facts have been stated in reference to solutions of cocaine: (1) In a solution with considerable excess of acid, the anæsthetic properties of cocaine are temporarily destroyed, but are at once restored on neutralizing the acid. (2) All the mineral and organic acids experimented with mask its anæsthetic properties when in excess. (3) The anæsthetic powers attain their maximum when all the acid is neutralized, and the solution is slightly alkaline. Such a solution is slightly milky, and for convenience may be called *milk of cocaine*. It is best prepared by neutralizing any excess of acidity by a solution of carbonate of soda. The bicarbonate is not so efficacious. Such a solution acts more promptly and more powerfully than one in which there is any trace of acidity. To this fact may be due the somewhat divergent results obtained from samples of the crystallized hydrochlorate, otherwise perfectly pure. The duration of the anæsthesia produced by cocaine has appeared to the writer to depend more on the length of time the solution is in contact with the mucous membrane than on the strength of the solution. We can obtain an anæsthesia lasting half an hour by keeping the solution in contact with the mucous membrane for ten minutes. Milk of cocaine must be prepared as wanted, otherwise the alkaloid is precipitated.

Therapeutic Properties of Pichi. (*La Médecine moderne*, June 2, 1892.)—Pichi (*Fabiana imbricata*) is a plant, originally from Chili, and belonging to the solanacea. Its chemical composition is, as yet, imperfectly known. It has a pronounced diuretic action, but acts at the same time as a sedative on the mucous membrane of the bladder and urethra. It has proved serviceable in catarrhal conditions of the urinary tract, but is contra-indicated in nephritis.

Two Cases of well-marked Argyria from the Local Use of Nitrate of Silver. (*Archives of Surgery*, London, April, 1892.)—Mr. Jonathan Hutchinson reports two cases. The first was a very typical one, a man aged sixty-three, whose skin was stained of the leaden blue tint. He denied having ever taken any long course of drugs, but by accident it was elicited that he had been treated for more than a year for sore mouth and throat by applications of caustic. The second was the case of a young man, who had been treated at one of the London throat hospitals, and there was no reasonable doubt as to the connection between cause and effect. The staining involved the whole of his skin, and more or less all visible membranes.



Value of Sprays in the Treatment of Catarrhal Affections of the Upper Air-Passages. By Dr. C. C. Rice, of New York.

In a paper read before the American Laryngological Association, Dr. Rice recommended a weak solution of cocaine, say less than one per cent., as a good anodyne and astringent. While remarking upon some of the advantages of the petroleum preparations, he said their inconsiderate use was liable to be followed by a dry condition of the nasal passages, which was anything but agreeable. Antiseptics, like iodoform and aristol, lost much of their antiseptic properties when used with oily agents, nor could their stimulating action be so well relied upon. The pressure used, and the temperature, should be adapted to the particular case, and the location to be reached by the spray. He believed that by the careful use of sprays, one could diminish the number of operations for nasal disease.

Early Treatment of Appendicitis. (*New York Medical Record* (selections), April 16, 1892.)—Professor Peters recommends the application as early as possible of wet cups or, preferably, a good number of leeches, directly over the tumor, or seat of inflammation. In his experience this local bloodletting has on several occasions proved very efficacious.

Effects of Bitters on Gastric Movements. (*Lancet*, May 28, 1892, p. 3587.)—According to Dr. Paul Terray, of Buda Pesth, bitters acting on the peripheral automatic centres of the stomach increase very distinctly the movements of this organ, rendering them more rapid and more persistent. Very careful experiments have been made by him on the stomachs of dogs. He finds gentian one of the more powerful stimulants; after it cetrarin and condurangin; then come taraxacum, quinine, and, lastly, quassia. Absinthin diminished the irritability, and large doses arrested it altogether. Columbine and strychnine increased it till persistent general contractions were induced. In these experiments the stomachs were taken from the animal immediately after severance of the spinal cord and immersed in a slightly saline solution at blood heat. The automatic movements, which continued for some time, were first watched, and then the effects of the several drugs were noted. It would appear from this that in the atonic conditions of the stomach, and in moderate dilatation, bitters have a very distinct therapeutic action.

Viburnum Prunifolium; its Physiologic Action and Therapeutic Applications. (*Medical News*, April 2, 1892.) By R. L. Payne, Jr., M.D., Lexington, N.C.—Dr. Payne, after careful experimental research on the action of this drug upon cold- and warm-blooded animals, deduces the following conclusions: Black haw appears to exert no influence on consciousness or sensibility, but has a constant and marked effect upon the centres of motion. After its administration gradual paresis is first noticed, then complete paralysis of voluntary motion, and, finally, loss of all reflex power.

In cold-blooded animals the pupils are contracted, but in warm-blooded animals no effect upon them is noticeable. It enfeebles the action of the heart, and under full doses there is a distinct lowering of the blood-pressure, owing partly to increasing feebleness of the heart's action, and in part to a distinct action on the vaso-motor system. In lethal doses paralysis of the heart precedes the cessation of respiration. The heart is arrested in diastole. Dr. Payne concludes, from the result of his experiments, that viburnum paralyzes both the centres of voluntary motion and the reflex functions of the spinal cord, and thinks it destined to become an approved remedy in all diseases characterized by increased excitability of the motor centres. An especial recommendation in such cases is the fact that it does not impair sensation or consciousness. The writer refers to a case of paralysis agitans, in which the prolonged use of moderate doses of this remedy produced marked diminution of the tremor. He thinks it especially useful, however, in certain forms of dysmenorrhœa, and in the prevention of abortion. The preparations recommended are the solid extract in doses of from five to ten grains, the fluid extract in doses varying from a drachm to half an ounce, and a decoction prepared from the bark of the fresh root.

**Treatment of Typhoid Fever by Cold Baths.** (*Medical News*, May 28, 1892.) By George Wilkins, M.D.—The writer states that although at first he adopted Liebermeister's method, he has since given it up in favor of Brandt's method with slight modifications. The baths are only given when the temperature in the mouth reaches  $102.6^{\circ}$ , and the patient is not kept in them longer than ten or twelve minutes. Ordinary bathing trunks are placed on him, and in most cases he is lifted into the tub. While in the bath, cold-water compresses are placed on the head, or the cold water is poured over it: at the same time another assistant applies friction to the surface of the body. Sometimes, while in the bath or just before it, from half an ounce to an ounce of whiskey is given either in milk or water. The temperature is taken every five minutes in the bath. After the patient is considered to have been sufficiently long in the bath he is lifted out and placed on a dry blanket, his trunks removed, and he is covered up and left for half an hour; he is then wiped dry, and his temperature taken. This is almost always found to be from two to four degrees below what it was previous to the bath. In most of his cases the patients objected very decidedly to the bath at the time, but rested and slept better afterwards, and expressed themselves as feeling better. Although using the cold baths in the great majority of his typhoid patients, Dr. Wilkins is not as yet convinced of the advisability of treating every case of typhoid fever by this method. With respect to contra-indications, the most important are those accidents that may arise in the course of the disease, and which require rest as one of the means of treatment, such as hemorrhage or peritonitis. A very weak heart, with a dicrotic pulse, will require great caution.



## NEUROLOGY.

IN CHARGE OF CHARLES W. BURR, M.D.,

Pathologist to the State Asylum for the Insane, Norristown; Visiting Physician to the Home for Incurables; Visiting Physician to St. Joseph's Hospital, Philadelphia, Pa.

Insanity of the Puerperium. (*Journal of Nervous and Mental Diseases*, June, 1892, p. 408.) By Amelia Gilmore, M.D.

This physiological crisis furnishes more patients to the State and city hospitals for the insane than any other period or cause, excepting the etiological nondescript in hospital statistics, "general debility." In the Philadelphia Hospital one patient in every forty-three is the subject of puerperal insanity. Of the thirty-four cases which the writer reports, it was the first attack in twenty-five; the second in six cases; two of them had three previous attacks, and one has been four times insane at the puerperium. Of these cases twenty recovered, two improved, two died, and ten remain under treatment. Of the latter the majority are convalescing. Among those who recovered the duration of the illness varied from two months to four years; and the length of time in the hospital was from one month and seven days, for the shortest case, to twenty-eight months as the maximum time under treatment. And the tables of recovery show that there is a relation between the early hospital treatment and early recovery, the advantage being to those who are admitted at the onset. The average time in the hospital has been about six months, though one-third of the cases were less than four months under treatment. Age seems to have some influence also in the prognosis. Two-thirds of those who recovered were below thirty years of age, while of those who have not recovered the majority were thirty years old or above it; seven above thirty to three below it was the proportion in this class. Only one-fourth of the cases were primiparæ. Illegitimacy was a factor in but three cases, though in some foreign asylums this is one of the chief causes of puerperal insanity,—the rate being as high as twenty-five per cent. in Dr. Clouston's cases. One had been deserted very soon after her marriage.

Of the forms of insanity at this period, mania was the most frequent, appearing in two-thirds of the whole number, while one-third were melancholic; and this is the proportion noted by most observers. Positive delusions were not common among them; a few only believed themselves the subjects of persecution.

The prognosis is of the first consideration generally in these cases, and one which it is desirable to determine early in order to relieve the anxiety of friends. The importance of inheritance is not underrated, and yet where this is unfavorable and there is a strong neurotic tendency, or insanity is known to exist in the family, we have still ground for hope, as our recovery-rate in these instances is quite 50 per cent. In general we make a favorable prognosis, as the number of recoveries is large, reaching as high as eighty per cent. in some asylums. In the Philadelphia Hospital there was recovery

in two-thirds of the cases, or 66 per cent., with some still remaining under treatment whom it is safe to say will recover, making the rate still higher, as but three cases remain in chronic mania.

The insanity may develop at any time during the lying-in period. Whether it is due to anæmia, toxæmia, inherited instability, physical or moral causes, one only or all combined, as is found in some cases, the result is the same. Too much importance cannot be attached to the early recognition of the first indications of unstable equilibrium. Only a word need be added as to prevention. Great stress should be laid, in directions to the nurse, to observe carefully any departure of the woman from the usual mode of thought or action, and symptoms of depression should be especially noted. The hygiene of the puerperium should be so perfect, the mental danger so thoroughly understood, that at the least suggestion of an unbalanced mind the regulations of a well-ordered insane hospital should be carried out.

The proper treatment consists in the removal of all sources of irritation, the careful regulation of the secreting and excreting functions, with rest, sleep, food, proper sedatives or tonics, and suitable attendance to prevent accidents.

**Cases of Unusual Forms of Spasm.** (*Journal of Mental and Nervous Diseases*, May, 1892.)—C. W. Burr, M.D., reports the following cases from Weir Mitchell's clinic:

**CASE I.**—Boy, aged sixteen years. Onset of present trouble five years ago. The attacks begin with wild, jerky, choreic movements of the arms, soon becoming general. The patient seizes one arm with the other hand, bends forward, sways from side to side, grimaces, and sinks slowly to the ground. He is never thrown to the floor. Consciousness is unaffected. The tongue is never bitten. For a few seconds before the onset he has "a curious sensation." Duration, one minute. Frequency, forty in a day to none in three weeks. Rising from a chair or starting to walk is most apt to precipitate an attack, but this is an inconstant cause. Thirty grains of bromide t. i. d. greatly reduced the number of attacks, but caused marked irritable depression. No evidences of hysteria. The authors regard it as possible that this is a case of spinal spasm.

**CASE II.**—Male, aged forty-eight years. Walks with two canes held straight in front of him. If they be taken from him he stands swaying slightly and protests that he cannot move. If supported slightly he makes violent efforts, and, finally, sinks to the ground. There is no true palsy. He can move his legs well and forcibly while recumbent. At times there is violent clonic spasm of one arm, often becoming general, which at first followed only violent, voluntary muscular effort, but which now may be developed by massage and hypodermic injections of water. The case is one of male hysteria.

Two other cases of spasms following voluntary effort are also related.



**The Vertigo of Arterio-Sclerosis.** (*Boston Medical and Surgical Journal*, June 30, 1892.)—Archibald Church gives a very interesting article upon this subject. He follows Grasset in dividing these vertigoes into three forms: 1, simple; 2, with epileptiform crises; and 3, with slow pulse and syncope or epileptiform attacks. Diagnosis is often extremely difficult. It may be mistaken for Ménière's disease, especially if, as may happen, there is a sensation of falling in a given direction, and if a little middle-ear catarrh be coincidentally present. The treatment is potassium iodide in doses of from thirty to ninety grains daily.

**Malarial Epilepsy.** (*Boston Medical and Surgical Journal*, June 30, 1892.)—Dr. Eugene W. Hill reports two cases of the above, the first of which died in epileptic status, and in the second case the attacks were readily aborted by quinine, calomel, and bromides. He notes (1) that the convulsions remained unchanged under three entirely different conditions, namely, the three stages of an intermittent fever; (2) the temperature rose with the close of each paroxysm but fell in the quiet interval to the fever level, and did not show the abrupt, rapid, and successive rise which occurs in eclampsia; (3) the success of nitro-glycerin over bromides, chloroform, and nitrite of amyl, especially in those cases characterized with a large flow of pale urine.

**Sudden Death from Affections of the Nervous System.** (*Boston Medical and Surgical Journal*, June 23, 1892.) By Dr. Philip Coombs Knapp.—Sudden death—*i.e.*, within an hour—is not uncommon in neuritis of the vagus following acute infectious diseases, but here probably degeneration of the cardiac muscle also comes into play. In spinal meningeal hemorrhage death is speedy—*i.e.*, within one day—rather than sudden. In spinal hemorrhage it is rather less speedy than in the preceding, unless the lesion be high up, and in acute hemorrhagic myelitis it is even slower than in hemorrhage. Sudden death is rare in cerebral meningitis and meningeal hemorrhage; it may, however, follow rupture of a large vessel at the base. Cerebral hemorrhage may be regarded as the chief cause of sudden death, which is much less frequent in softening. In abscess sudden or speedy death may follow rupture of its contents into the ventricles. In tumor it is not uncommon for coma to precede death for from twelve to forty-eight hours. In the few cases of acute polioencephalitis death has occurred only after an illness of several days. In disseminated sclerosis and in general paralysis of the insane, pseudo-apoplectic seizures and convulsions may, in extremely rare cases, cause sudden death. In acute mania also sudden death is occasionally seen, but it is due to conditions outside of the nervous system. Sudden death in convulsion is probably due to vascular disturbance. In the ultimate analysis, therefore, we find that sudden death in these affections is to be referred not to changes in the nervous system itself, but to changes in the vascular system.

## PEDIATRICS.

IN CHARGE OF T. M. ROTCH, M.D.,

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ASSISTED BY

E. M. BUCKINGHAM, M.D.,

Instructor in Diseases of Children, Harvard University; Visiting Physician to the Children's Hospital, Boston.

The Structure of the Intestinal Canal in Infancy. (*Revue Mensuelle des Maladies de l'Enfance*, May, 1892, p. 229.) By N. Goundobine.

The writer states that there is no complete work on this subject, and takes it up himself systematically. The mucous layer of the small intestine is thinner but richer in glandular elements than that of the adult, the proportions between glandular cells and connective tissue being reversed. The thickness of this membrane varies with age; in adults this tissue is thickest in the duodenum, thinnest in the ileum; in nurslings this difference is less pronounced, and in the newly-born the thickness is not more than half of that in adults. Towards the end of the first year it grows notably thicker, and approaches the adult condition by seven years. *Valvulæ conniventes*, villi, and glands exist at birth. The *valvulæ conniventes* are, however, much less developed in proportion to the intestine as well as less numerous, and the villi are a little smaller, while their number is proportionately large; this observation being opposed to that of Baginsky. The glands of Lieberkühn are shorter and of less diameter, but are relatively numerous, as compared with adults; they develop with the thickness of the mucous membrane. Brunner's glands are relatively more numerous—that is, closer together—than later, but their development is rudimentary: the number of tubes in a lobule is not over a quarter of that in adult life, while their diameter is not over a half. The number increases with age, so that by two years there is no difference in this respect. The external opening is, however, more easily seen.

In the large intestine the semilunar folds are less developed than later; and here as well as in the rectum the glands of Lieberkühn are relatively numerous compared with adults. In the appendix the solitary follicles are better developed than in the large intestine.

The author's conclusions are as follows: (1) The epithelium of the mucous membrane is completely formed at birth, and its dimensions are the same as in adult life. (2) The adenoid tissue is richer in fusiform cells as compared with glandular cells. (3) The absolute number of lymphatic elements in the intestinal villi is much less in nurslings. (4) The glands of Lieberkühn are relatively well developed, those of Brunner are rudimentary.

The submucous tissue is characterized by poverty in elastic fibres, richness in cellular elements, nerves, and vessels, and is more firmly attached to the mucous membrane. The muscular layer is slightly developed. The



vessels of the villi are as numerous as in later life and elsewhere present nothing remarkable, and in general the mucous membrane of the nursling is as vascular as that of the adult.

The nerve-fibres are much thinner than in adults. There was no peculiarity found on examining cells of isolated ganglia in the plexus of Auerbach or at most an increase in small cells. Osmic acid applied to the mesenteric nerves gave a light-brown color instead of black, as in adults, and in general the development of the intestinal nerves is comparable to that of the whole organism. Various opposing observations on the solitary follicles and Peyer's patches have been made by Possow, Billard, Friedleben, Jacobi, and Muller. The author states his own. The structure of the solitary follicles is identically the same in infants as in adults, but their dimensions are much less. The number of follicles is subject to variation independent of age, but, comparing mean numbers both of follicles and of intestinal areas, it seems that the intestine of the nursling is relatively rich in solitary follicles. He concludes that: (1) The absolute number of follicles in the small intestine increases with age. (2) In the very young, as shown by Weber, there are accumulations of glandular matter by the side of these follicles. (3) In children born before term the number of follicles is less than in those born at term. (4) The distribution of follicles is irregular, but they are more numerous in the lower parts of the intestine and are at a maximum in the ascending colon. The appendix has a great number of follicles. (5) The development of solitary glands is usually but by no means always proportioned to that of Peyer's patches. (6) Morbid processes, either general or local, exercise an influence on the number and condition of the follicles. The number of Peyer's patches probably does not alter with age but varies greatly with the individual. The proportion is therefore greatest at birth. The size is greater in adults.

In general the intestines have weak muscles, comparatively well-developed mucous membrane, completely developed lymphatics, comparatively developed glands of Lieberkühn. The vascular system is well developed, as are the plexuses of nerves, but these last are wanting in the myaline layer. These differences from the adult anatomy explain many differences in the clinical picture of children.

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## SURGERY.

IN CHARGE OF B. FARQUHAR CURTIS, M.D.,

Surgeon to St. Luke's Hospital and to the New York Cancer Hospital.

Lead-Poisoning from a Bullet embedded in Bone. (Ein Fall von Bleivergiftung durch eine im Knochensteckende Kugel. *Archiv f. klin. Chirurgie*, xliii., Hefte 3 und 4, p. 221.) By Prof. Küster and Dr. L. Lewin.

A man, thirty years of age, received a bullet in the tibia just below the knee-joint. The wound healed, leaving the patient suffering only from slight limitation of motion in the knee. For over seventeen years he remained healthy, then symptoms of chronic lead-poisoning appeared, and lead could be demonstrated in the urine, but no albumin. Küster explored the bone and found that the bullet had been shattered into small particles which were spread throughout its track. All was removed and the patient slowly recovered from the lead-poisoning. Küster thinks the case is to be explained by encapsulation of the lead by bloodless cicatricial tissue which was gradually replaced by more vascular tissue, and thus the lead was exposed to the blood-current and dissolved, its fine subdivision assisting this absorption. Only three other cases could be found in literature, and none after such an interval of quiescence. He excludes a cumulative effect of the lead by the long duration of the free interval and by the fact that there was no albumin in the urine, showing that it was probably not due to a beginning irritation and defective elimination by the kidneys.

**Clinical and Anatomical Observations in Chronic Empyema.** (Klinische und anatomische Beobachtungen an grossen Empyemhöhlen. *Archiv f. klin. Chirurgie*, xliii., Hefte 3 und 4, p. 208.) By Prof. Helferich.

Helferich reports two cases of chronic empyema with large cavities showing no tendency to close, which were cured by extensive resection of the ribs, implanting in the cavity the flap made of the soft parts to expose the ribs. He observed in these cases a curious alteration of the ribs, new bone having been deposited on the inner surface to such an extent that the section became triangular (with apex directed inward) instead of the usual oval form. In the older cases it was impossible to determine what was the cause of this altered shape, but a recent case showed it to be due to the deposit of new bone.

**Operative Treatment of Pott's Disease.** (Contribution à la chirurgie rachidienne du drainage vertébrale dans le mal de Pott. *Revue de Chirurgie*, April, 1892, p. 275.) By Vincent.

Vincent advises the drainage of abscesses and the removal of diseased bone in Pott's disease of the vertebræ. The drainage-tube is to be passed in U-form, either entirely in front of the vertebræ or directly through the bodies in front of the spinal canal. The operation is carried out by a vertical incision on each side of the spinal muscles, joined by two others drawn horizontally outward, converting them into T-incisions. One or more ribs are resected to give access to the front of the spine, and then a blunt, curved probe is passed in front of the vertebræ from one side to the other, and the drain drawn through under its guidance; or a curette is made to bore through the body of the affected vertebra obliquely forward and inward until it strikes an instrument held under the periosteum on the other side. The latter method is employed where the body of the vertebra is broken



down, and a curved drainage-tube is drawn directly through the bone. Two cases are given in which the operations were performed with success.

**Delayed Union of Tibia treated with Chloride of Zinc Injection.** (Retard de consolidation d'une fracture de jambe traitée par l'injection de chlorure de zinc. *Revue de Chirurgie*, 1892, p. 407.) By M. Ménard.

A man, forty-three years of age, sustained a compound fracture of both bones of the leg in the upper part. On the third day a plaster-of-Paris splint was applied, and allowed to remain for forty-seven days. No union took place, and the apparatus was reapplied for a month. After similar treatment for five months without union, Ménard injected one and one-fourth grammes of a ten-per-cent. solution of chloride of zinc on the anterior and posterior surfaces of the tibia and between the ends of the fragments, without an anæsthetic, causing severe pain. Immobilization was continued for fifteen days, and then union had begun and was solid in one month. The method has the serious objection of being very painful.

**Pathology and Treatment of Gangrene.** (Pathogénie et traitement des gangrènes chirurgicales. *Gaz. des hôpitaux*, 1892, 445.) By Jeannel.

Jeannel gives a *résumé* of the present stand-point of the pathology and treatment of gangrene of the extremities, opening a discussion at the recent French Congress of Surgeons. He divides the cases into those due to trophic changes or traumatism, and those due to virulent septic infection. The first may be infected later, but even then do not usually exhibit the malignant characters of the second class; and, on the other hand, cases of the second class may be due to micro-organisms which are not naturally virulent, but have become so by reason of some constitutional condition (typhoid fever, diphtheria, etc.). The first class have no tendency to extend or infect other parts, while the second class are both progressive and contagious. For the first class primary amputation is the operation of choice, although special circumstances may make it wiser to delay. If they become infected it may be necessary to wait for a line of demarcation; but if the septic process threatens to extend, immediate amputation is demanded. In the second class expectant treatment is indicated, followed if necessary by amputation. The discussion showed different opinions, some advocating early amputation in the second class also. Jeannel himself makes many exceptions to his general rules, as is unavoidable in such a complicated subject.

**Hypertrophy of the Breast.** (Ueber Hypertrophie der weiblichen Brustdrüse. *Archiv für klin. Chirurgie*, xlii., 1892, 403.) By Schüssler.

Schüssler reports two cases of this rare condition. One occurred in a woman of thirty-one years of age during her first pregnancy, the breast reaching an enormous size, but receding considerably after delivery. The other occurred in a virgin of fifteen years, at the time of her first menstruation, and both breasts were removed by operation one year later, when they

weighed two thousand nine hundred and four thousand nine hundred grammes respectively. The hemorrhage was slight, and the recovery was a good one. Besides these cases, Schüssler was able to find twelve fully-described cases in the literature, and in ten the disease began at puberty, while in three it began with the first pregnancy, leaving only one case unaccounted for. Of the cases of hypertrophy of one breast, only one can be proved to be a true hypertrophy, and there is no case on record of a partial hypertrophy of one breast. It is naturally easy to mistake cases of new growths of certain kinds for hypertrophy, and probably where the hypertrophy is of long standing the tissues become finally more or less like those of a fibroma. The symptoms are merely due to the mechanical difficulties caused by the size of the tumors. Locally it should be noted that the superficial veins are enlarged, the nipple not altered.

**Hemorrhage from the Nipple in Carcinoma of the Breast.** (Blutausfluss bei Carcinom der weiblichen Brustdrüse. *Deutsche med. Wochenschr.*, 1892, No. 19.) By Dr. Fritz Cahen.

Cahen reports a case of carcinoma of the breast, in which the first symptom noticed was a profuse discharge of blood from the nipple. The patient, a woman of fifty-seven years, then examined the breast and found a tumor the size of a small apple in the upper and outer quadrant of the left breast, which could be reduced in size by pressure, which caused a flow of blood from the nipple. There was no pain. A small gland was found on the edge of the pectoralis muscle. The breast was removed and the axilla cleared. Microscopically the tumor proved to be an intracanalicular fibroma or cystadenoma, with beginning carcinomatous changes. Cahen says that he can find no similar case in the literature for the last twenty years, and considers the hemorrhage as a result of the carcinomatous change. [But bloody discharge from the nipple is common in cystic fibroma, occurring, according to Gross, in one case out of seven. It is not uncommon in sarcoma and carcinoma, and is found also in the rare adenoma of the breast.—C.]

**Arsenical Treatment of Lymphosarcoma.** (Zur Kenntniss der Arsenikwirkung auf das Lymphosarcom (Billroth). *Deutsche med. Wochenschr.*, 1892, p. 419.) By Dr. Ernst Romberg.

Romberg reports a case of mediastinal lymphosarcoma in a man twenty-nine years of age, with multiple metastases, chiefly in the lymphatic glands and in the skin. He was in a miserable condition when admitted, with fluid in the left pleural cavity; this was withdrawn and Fowler's solution of arsenic given in fifteen-drop doses, slowly increased. The patient died of cachexia six weeks after admission, having taken altogether five hundred and ten drops of the solution. Although the other tumors were unaffected, those in the skin entirely disappeared within four weeks. Some of the nodules in the skin were of the size of a walnut.



The Treatment of Aneurisms by Extirpation. (Ueber die Exstirpation von Aneurysmen. *Beiträge zur klin. Chirurgie*, ix., 1892, p. 159.) By Dr. E. Kübler.

Kübler reports three cases of aneurism—two of the brachial and one of the popliteal artery—successfully treated by extirpation by Bruns. With other cases collected from the literature, he has a statistical material of forty cases, including both arterio-venous and arterial aneurisms. All but one were cured; one (a case of occipital aneurism over the occipital protuberance) died of hemorrhage. There was no case of secondary hemorrhage or of gangrene. The mortality was two and one-half per cent., while Delbet gives the mortality of the ligature as nearly nineteen per cent. The operation is often difficult and always tedious, but the cure is sure and permanent. [It is unfortunate that the author does not separate the ordinary and the arterio-venous aneurisms in his study, and does not distinguish sharply between the cases before and after the introduction of antiseptics; but his conclusions are representative of the opinions of many surgeons. It is, however, by no means certain that extirpation should supplant the central ligature in all cases, although there can be no doubt that it is the only method for the treatment of arterio-venous aneurisms.—C.]

Cholecystenterostomy; Recovery; Obliteration of the Opening by Contraction. (*Gaz. des hôpitaux*, 1892, 482.) By Richelot.

In the discussion on the surgery of the biliary passages, at the recent French Congress of Surgeons, Richelot reported a case of the greatest importance in studying the operation of cholecystenterostomy. A woman, fifty-two years of age, had had hepatic colic for ten years, and there was complete absence of bile in the stools. Laparotomy was done, but it was found impossible to ascertain the cause of the obstruction, and after removing a large number of calculi from the gall-bladder the latter was made to communicate with the duodenum in the usual way, suturing mucous membrane to mucous membrane, and then placing a row of serous sutures outside. The size of the opening is not mentioned. Only small quantities of bile appeared in the stools, and at intervals there was none. Three months later another laparotomy was performed, the gall-bladder reopened, the communication with the intestine found closed, and, while trying to remove what appeared to be a calculus from the depth of the bladder with a forceps, a severe hemorrhage occurred. The wound and the bladder were tamponed, but the patient died an hour later from loss of blood. The autopsy showed that a patch of atheroma in the hepatic artery had been mistaken for a calculus, and the artery had been torn by the forceps. The closure of the anastomotic orifice was due to fibrous contraction. The common duct was closed by cicatricial tissue.

## GENITO-URINARY SURGERY.

IN CHARGE OF WILLIAM K. OTIS, M.D.,  
New York.

The Treatment of Tuberculosis of the Bladder through a Suprapubic Section. (*Journal of Cutaneous and Genito-Urinary Diseases*, August, 1892.) By James Bell, M.D.

This author limits discussion to those severe and advanced cases in which general medical and local treatment have failed to give relief, and in which the pain and frequent or constant desire to micturate have rendered the patient's life useless, if not burdensome. He considers the advantages of the operation both immediate and remote. The immediate results in all of the cases which he reports gave full relief of the painful and frequent attempts at micturition, the arrest of hemorrhage, and in a short time a cessation of the pus discharge, except in those cases where the pus came from sources other than the bladder ulceration.

The remote effects were very much more satisfactory than could have fairly been expected. Of course when tuberculosis of the kidney already exists relief of bladder symptoms is all that can be looked for. This operation, moreover, is sound in principle and is carried out exactly on the same lines as the treatment adopted by surgeons for tubercular disease of other organs, and while it may not give as brilliant results, as some joint operations for example, it would seem, by effecting the removal of the diseased tissue and giving temporary rest to the diseased organ, to offer the best, if not the only, hope to many patients who are the subjects of tuberculosis of the bladder.

Compared with perineal cystotomy, it gives far more satisfactory rest to the bladder, inasmuch as the urine escapes through a healthy portion of the bladder wall, leaving the inflamed and ulcerated region just within the neck of the bladder free from the irritation of the catheter or drainage-tube. This operation, which is neither difficult nor dangerous and which brings the diseased area directly under the eye and hand, can be relied upon to give more complete and more lasting relief to those very distressing conditions produced by ulcerations of the mucous membrane of the bladder in the immediate neighborhood of this outlet than any other method of treatment at present known to surgeons.

The Use of Iodine Trichloride in Genito-Urinary Surgery; Preliminary Note. (*Journal of Cutaneous and Genito-Urinary Diseases*, August, 1892.) By William T. Belfield, M.D.

Dr. Belfield has been making a series of experiments with this drug, which is a simple compound of iodine and chlorine,—formula,  $\text{ICl}_3$ ,—made by passing chlorine gas over iodine. The result is a reddish-yellow powder, emitting an odor of chlorine, and readily soluble in water. It may



be kept in stock as a five-per-cent. solution in distilled water. When a few drops of this, or a weaker solution, fall into normal urine, instant decomposition ensues, both chlorine and iodine being liberated in the nascent state. This reaction is not caused by any of the urinary salts, but by an organic constituent of the urine, probably mucine. The same reaction occurs, though less rapidly, with blood, pus, saliva, and an infusion of muscle or connective tissue. A one-per-cent. solution readily sterilizes pure cultures of *staphylococcus pyogenes aureus*. It has seemed a valuable agent in checking fermentation of the bladder in cases of residuary urine from prostatic enlargement.

The author considers that the cases which he reports are too few and too incomplete to prove anything, yet they suggest the desirability of further testing this agent in the treatment of that most frequent and refractory malady, genito-urinary tuberculosis.

Communication on the Treatment of Chronic Gonorrhœa. (Beitrag zur Behandlung des chronischen Trippers. *Archiv für Dermatologie und Syphilis*, 11. Heft, 1892.) By Dr. T. Trzcinski, Warsaw.

This author, after careful observation of many cases, has come to agree with the statistics of Letzel that ninety-two and a half per cent. of all gonorrhœas become posterior and last for many months in spite of any treatment. He is inclined to put but little stress upon the presence of stricture as being the prominent factor in keeping up a discharge in the more recent cases, but advises in all old cases that the urethra should be carefully examined and all contractions be removed. As regards local treatment, he objects to the methods of Guyon and Ultzmann as being unscientific and too severe in most cases, while the application of medicaments in the form of suppositories and salves he considers even worse. His faith in the urethroscope is exceedingly limited, and he boldly states that the theories in regard to urethral pathology presented by Grünfeld are preposterous. The method which he advises is a modification of that of Neiser, and consists of the daily washing of the entire urethra with a solution of the nitrate of silver, beginning with a solution of one to eight thousand and gradually increasing up to one to three thousand, using a small catheter with an olive tip which is passed gently into the bladder and the solution introduced by means of a hand-syringe. The first portion of the solution, that washing the posterior urethra, flows into the bladder, the catheter being gradually withdrawn until the compressor urethræ muscle is passed, when the fluid runs out alongside of the catheter, washing the entire anterior urethra. Under this treatment the discharge disappears in a few days, leaving only "tripperfaden" (gonorrhœal threads), which may continue for some weeks. A patient may be considered cured when he can squeeze out a drop containing no pus, and when only a few "tripperfaden" exist in the morning urine alone.

## ORTHOPÆDICS.

IN CHARGE OF REGINALD H. SAYRE, M.D.,

Assistant to the Chair of Orthopædic Surgery, Bellevue Hospital Medical College, New York.

**Reflexes in Hip-Disease.** (*Boston Medical and Surgical Journal*, March 31, 1892.) By E. G. Brackett, M.D.

The author examined forty-seven cases of hip-disease, and compared the results with those found in twenty-one cases of spinal caries. In the spinal cases the patellar reflex in both legs was equal, and rarely increased. In the hip cases the diseased side presented exaggerated patellar reflex. In the very early stages, where there is a question of diagnosis between hip-disease and disease of the lumbo-sacral spine, this difference in the patellar reflexes may prove of value.

**Fractures and Injuries of the Cervical Region.** (*St. Louis Courier of Medicine*, March, 1892.) By De Forest Willard, M.D.

The author reports four cases. The first was a fracture of the third cervical vertebra, resulting from a fall of thirty feet. The fragments were adjusted by means of strong traction, and the parts kept in position by a plaster-of-Paris collar. Later on traction in bed by weight and pulley was made for six weeks. Then a plaster-of-Paris collar was applied for six weeks more. The recovery was perfect.

The second case was one of cervical hemorrhage, the result of diving into a pool two feet deep from a height of eighteen feet. There was loss of both motion and sensation in both upper extremities, but not in the lower. Under treatment by traction and counter-traction he recovered.

The third case was remarkable from the fact that the man was able to walk home after fracturing the odontoid process of the axis and dislocating the atlas in consequence of falling twenty feet, striking on his head. He died in ninety-eight hours.

In the fourth case, fracture of the laminæ of the third, fourth, and fifth dorsal vertebræ resulted from a fall of forty feet, striking on the head. There was total loss of motion and sensation below the injury, but consciousness was preserved. Death followed in ten hours.

**The Comparative Value of the Different Methods of Treatment of Caries of the Spine.** (*Southern Clinic*, July, 1892.) By E. H. Bradford, M.D.

The conclusions reached in this paper are as follows: That Pott's disease represents one of the most curable of surgical affections; that its treatment involves care for a long period, three or four years, and that treatment short of that is treatment of only a stage.

During the painful stage, recumbency with complete fixation is the best treatment.



In the stage of improvement the benefit of air and exercise is essential, and efficient support is necessary. In this stage the antero-posterior steel support is efficient and reliable, if carefully fitted and well applied, and will enable the surgeon to obtain excellent results.

The plaster jacket furnishes a ready and efficient means, applicable where special skill is not possible and where nursing is imperfect.

**Pathology of Congenital Talipes Equino-Varus.** (*Revue d'orthopédie*, May, 1892.) By L. Longuet, M.D.

From careful dissections in three cases the author concludes that all the structures of the foot participate in producing the deformity. The skin on the inner border of the foot is adherent, the plantar fascia is tense and shortened, and the subcutaneous fat is more abundant than on the opposite side. The muscles were normal in their number and insertion, but the tibialis anticus and posticus, extensor proprius pollicis, and extensor communis digitorum were diminished in size as compared with the other foot, and the fibres were pale or yellowish, the whole of the muscle was shortened, the tendo Achillis was contracted, the astragalus twisted on its antero-posterior axis and its neck strongly bent inward. The os calcis was elongated antero-posteriorly, flattened transversely, and curved in such a way that its external surface was convex and its inner one concave. In two cases the tubercle of origin of the abductor minimi digiti was wanting. The scaphoid and cuboid were irregular and cartilaginous, and the groove for the tendon of the peroneus longus on the under surface of the cuboid was wanting. The cuneiform bones were irregular and not so far advanced in ossification as in the healthy foot. There was little change in the metatarsus. All the bones were less developed than on the other side.

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## OBSTETRICS AND GYNÆCOLOGY.

IN CHARGE OF JOHN M. KEATING, M.D., LL.D.,

Colorado Springs, Colorado; Fellow of College of Physicians of Philadelphia; Gynæcologist (Emeritus) to St. Agnes's Hospital, Philadelphia; formerly Visiting Obstetrician to the Philadelphia Hospital (Blockley); Editor "Cyclopædia of the Diseases of Children," etc.

**The Use (Abuse?) of Morphine and other Strong Sedatives in Gynæcological Practice.** (*Maryland Medical Journal*, May, 1892.) By Hunter Robb.

This is a timely warning to the physician and surgeon, and we hope will bear good fruit. The author states, "In the care that I have had of over seven hundred celiotomies and a large number of plastic cases, morphine has been required in but a few instances. . . It is the iron-bound rule in the gynæcological department of the Johns Hopkins Hospital in post-operative cases to give it only in cases of dire necessity. Long series of difficult celiotomies and plastic cases convalesced thoroughly, satis-

factorily, and comfortably without the administration of any morphine or other sedative," [and he might have gone on to say that many cases that have previously been under treatment for weeks, months, or years, and have contracted the morphine habit,—not morphine alone, but bromides, chloral, antipyrin, bromidia, alcohol, and other "habits,"—fail on this account to benefit by skilful surgery.]

In conclusion he makes the following suggestions :

1. That general practitioners, but more particularly specialists, should carefully scrutinize every prescription they write containing morphine, and that under no circumstances should its renewal be allowed unless under their personal supervision.

2. The patient should never be allowed the use of a hypodermic syringe.

3. The druggist should be prevented from dispensing morphine without a prescription.

4. When morphine is prescribed, the patient should never be informed of the character of the drug.

These remarks apply to all analgesics and sleep-producers, particularly chloral, chlorodyne, sulphonal, etc.

As substitutes for morphine I would advise, where practicable, electricity; internally, in guarded doses, gelsemium, phenacetin; and, as local applications, the cautery, oil of peppermint, and oil of winter-green.

**Varicocèle in the Female as a Cause of Neurasthenia.** (*Archives of Gynæcology*, May, 1892.)—Wiederhold has noticed that neurasthenia frequently coexists with dilatation of the veins of the pampiniform plexus, and suggests that, instead of removing the ovaries in intractable cases of hysteria, the veins should be ligated, as in varicocèle in the male. The ovarian pain is best relieved by massage, electricity, and hydropathic treatment.

**Sterility in the Married.** (*Berliner klin. Wochenschrift*, 1891.)—Seeligmann takes a more hopeful view of the subject than most writers. He speaks enthusiastically of the good effects of massage and electricity, especially in cases of chronic disease of the adnexa following parturition, with resulting sterility. Under the influence of massage he has seen the ovary reduced in size, and its functional activity restored, the distorted tube straightened and rendered patent. In applying galvanism he always uses the negative intra-uterine electrode, since it has only a weak cauterizing action, and causes an alkaline reaction of the secretion, favorable to the prolonged activity of the spermatozoa.

As regards sterility in the male, he states that the prevailing ideas with regard to the effect of epididymitis are too pessimistic, since there are many cases in which men thus affected have been fully capable of procreation. As a prophylactic measure in every case of gonorrhœal epididymitis, as soon as possible after the acute stage, regular massage should be practised, with applications of ichthyol and later permanent compression.



Thirty-two Unselected Abdominal Sections. By Thomas Opie, M.D., Baltimore.—The operations were performed consecutively, as set forth in the accompanying table :

Ovarian tumors.....	6
Chronic ovaritis.....	7
Fibroid tumors.....	4
Pyosalpinx.....	5
Retroflexion with adhesions and dysmenorrhœa.....	3
Exploratory incisions.....	3
Extra-uterine pregnancy.....	1
Abscess of ovary.....	1
Cyst of broad ligament.....	1
Cystic degeneration of ovary.....	1
Total.....	32

Nine of these patients came through the dispensary connected with the college, and were operated on in the amphitheatre before the whole class at the College of Physicians and Surgeons ; the remainder, twenty-three, were operated on privately. Twenty-seven were white and five were colored.

#### DEATHS.

The deaths were as follows :

Oöphorectomy for pyosalpinx.....	1
Shock from ovariectomy.....	1
Oöphorectomy for acute mania.....	1
Abdominal hysterectomy for fibro-cystic tumor.....	1
Total.....	4

Under *chronic ovaritis* the following are reported. [These cases are suggestive. Is total extirpation to be the only chance for relief ?—REV.]

CASE XII.—White, single, aged twenty-one. Has since childhood been subject to recurrent attacks of follicular tonsillitis. Her menses were established at seventeen ; about that time she had a severe attack of typhoid fever. For six months prior to the operation of oöphorectomy she had been bed-ridden. She was hopeless, dyspeptic, and anæmic to an extreme degree. Her neuralgic headaches and ovarian pains were intolerable at each menstrual epoch. She readily accepted the proposal as to the removal of the ovaries. The operation was borne courageously and her convalescence was uninterruptedly good. Upon her return to her home in Baltimore she relapsed into her former despondent condition. She has not fulfilled the expectations as to a complete cure, though she has improved physically.

CASE XIV.—White, aged twenty-three, single. Was healthy until thirteen, when menstruation began. At first the recurrences of it were painless and regular. An interruption of four months occurred, and dysmenorrhœa, menorrhagia, and ill health followed. Tormented by her physical pains and her inability to support her aged parents, she sought oöphorectomy as a last resort. It has brought about excellent health and capacity for work.

CASE XVI.—White, aged twenty-two, single. Unlike the preceding case, she had led a life of luxury and ease. Her dysmenorrhœal pains in defecation and general

depreciation in health during five years caused her family to seek the removal of the ovaries. Perfect satisfaction as to health has resulted, and she is much more cheerful and comfortable.

*Stitch abscesses* occurred nine times; while no case proved disastrous, several were exceedingly annoying by keeping patients in the hospital. They occur most frequently in cases where the drainage-tube has been used. The early opening of the abdominal dressings for any purpose favors their occurrence. When the dressings remained intact for seven days there seemed to be the greatest immunity from the stitch abscess. Dr. Welch says, "A coccus, which may appropriately be called the *staphylococcus epidermis albus*, is a nearly, if not quite, constant inhabitant of the epidermis, lying both superficially and also deeper than can be reached by present methods of disinfection of the skin. The coccus is found frequently in aseptic wounds. It may be the cause of disturbances, usually of a relatively slight degree, in the healing of the wound, especially when drainage-tubes are inserted. It is the most common cause of stitch abscesses in wounds treated aseptically and antiseptically."

Ruptured Right Tubal Pregnancy, associated with Perforation of the Vermiform Appendix; Confirmatory Diagnosis by Aspiration; Colon Bacillus in the Aspirated Fluid; Operation; Death. (From the *Johns Hopkins Hospital Bulletin*, No. 17, October-November, 1891.) By Hunter Robb, M.D.

Remarks by Dr. W. H. Welch.—There are many points of interest in this case reported by Dr. Robb. The peculiar form of chronic inflammation, attended with a granular condition of the mucous membrane of the urethra, extending thence along the left ureter into the left renal pelvis, was probably gonorrhœal in origin.

Sections of the mucous membrane of the ileum, from the areas supposed at the autopsy to correspond to old healed typhoid ulcers, have been carefully studied by Dr. Reed, and this diagnosis confirmed. Of special interest is the demonstration of the reproduction of the mucous membrane, containing crypts of Lieberkühn, resting in places directly upon the main muscular coat, where the submucous coat had been destroyed by the ulceration. This specimen shows conclusively that the glands of Lieberkühn are reproduced after typhoid ulceration.

The finding of the bacillus coli communis in large number in the bloody fluid withdrawn by hypodermic syringe during life suggests the value of a bacteriological examination of the fluids withdrawn for purposes of diagnosis from the peritoneal cavity. The existence of intestinal perforation was suspected in this case, not on the grounds of any symptoms pointing during life to this accident, but simply on the ground of the bacteriological examination. This suspicion was confirmed at the autopsy, which revealed perforative appendicitis. The symptoms referable to this condition were obscured by those resulting from the ruptured sac of tubal pregnancy.



Removal of Uterine Appendages for Hystero-Epilepsy. (*American Gynæcological Journal*, June 18, 1892.) By H. J. Boldt, M.D.

The author's conclusions are: "The conclusions from the cases cited certainly prove that there are cases of hystero-epilepsy which are absolutely cured by removal of the adnexa. It also shows, however, that, although both symptoms and examination point directly to the adnexa as the cause of the epileptoid fits, the result gained by their removal disproves it, as Case II., in my own series.

"I would consider as indications for removal of the adnexa for the cure or improvement of hystero-epilepsy, that all other treatment generally used for the relief of epilepsy has been negative in result; that the patient's condition has gradually become worse; that such pathological changes exist in the pelvis,—*i.e.*, adnexa,—which can be readily ascertained, and that the epileptoid fits must obviously be found to have some connection with such diseased condition and menstruation. If the operation is contemplated in a case where the appendages are not grossly diseased, I deem it necessary that there should be epileptoid fits at times upon palpation of the ovaries, and invariably the manifestations of an attack when such palpation is made; that the seizures should be most intense about the menstrual period; that if an aura exists it should proceed from the ovarian region; that all other causes must be positively eliminated; that the patient must have been under observation under a very experienced observer to determine this, and that she should have been under the care of a neurologist or seen by him in consultation.

"Never is it permissible to do an operation of this kind without first clearly stating to the patient in the presence of witnesses what the results will be and of what the operation consists, and also the fact that there is a possibility of the operation being a failure for the condition for which it is undertaken, if it be done solely for the cure of the hystero-epilepsy.

"The operation should never be done unless sanctioned by an experienced gynæcologist, who has himself observed the patient sufficiently long to arrive at a conclusion, which cannot be done in one, two, or three consultations; neither should it ever be performed by any one who is not an experienced abdominal surgeon.

"Even the most experienced will sometimes err in the result of their opinion; it is for this reason, therefore, that I demand such great amount of care in this operation for this nervous disease. These requisites hold good also for all neurotic conditions for which removal of the adnexa is contemplated.

"The removal of the adnexa may be accomplished either per vaginam or by abdominal section, according to the respective case.

"My opinion, then, is that we know nothing positive about what the result will be in any case. I only maintain that the operation is justifiable in some cases."

## OPHTHALMOLOGY AND OTOTOLOGY.

IN CHARGE OF J. E. HARPER, A.M., M.D.,  
Chicago, Illinois.

**The Fungus of Chalazion.**—In a paper published in the *Journal of the American Medical Association* on the nature of the tumor which occasionally develops in the Meibomian glands of the eyelids, Dr. M. F. Weyman arrives at the following conclusions :

1. Chalazia are not retention-cysts, but true granulomata.
2. Their appearance in large numbers in successive periods suggests a parasitic etiology.
3. Their ready reproduction after removal also points in that direction.
4. The growth of granulation tissue presupposes a long-continued irritation of a low grade.
5. A fungus can be demonstrated.
6. The "fungus chalazicus" fully explains the etiology of the neoplasm.

**Homatropine Disks.**—Dr. Arthur D. Mansfield (*Medical and Surgical Reporter*, June 11, 1892) expresses his belief that homatropine is the best mydriatic for use in determining refraction. He uses the disks containing one-fiftieth grain each of homatropine and cocaine.

His reasons for preferring the disks to either the aqueous or oily solutions of homatropine are as follows :

In the first place, we have a definite quantity instilled into the eye, and hence we obtain a definite result if the disks contain the definite amount, and we have every reason to believe that they do.

Secondly, the disks, being dry, are not subject to the same fungoid growths and changes in composition to which the aqueous solution is exposed. Consequently the disks can be kept for any length of time, while age impairs the efficiency of the aqueous solution.

Thirdly, the action of the disks is more rapid by half, in some cases by two-thirds, than the solution of the drug.

Fourthly, in using the solution there is always more waste than in the employment of the disks, which is quite a consideration in the use of such a drug as homatropine. The drug is a useful one no matter in which form we use it, and cannot well be dispensed with in our present work, but the desires of the age are always for the better, no matter how small the difference may be, especially when the difference is a question of time combined with efficiency.

**The Visual Field in Epileptics and Mentally Deficient Patients.**—Lombroso (*Rec. d'Ophthal.*, August, 1891) draws the following conclusions from his observations :

1. The visual field is remarkably limited in epileptics and idiots.



2. There is a constant irregularity at the periphery of the field, and the line of demarcation appears irregular and sinuous, sometimes forming actual peripheral scotomata of very inconstant relation.

3. The field is more limited on the right side in the lower hemisphere and on the left side in the upper hemisphere, thus forming a partial hemianopsia to the right below and to the left above. This he calls a partial heteronymous vertical hemianopsia.

4. In some cases there was an extreme limitation of the field due to neuro-retinitis.

5. In all the field for color was limited, its form following constantly that for white, but more or less regularly.

6. The field for blue and that for red cross at different peripheral points.

7. In almost all cases the ophthalmoscopic examination was negative.

8. The visual acuity was entirely independent of peripheral vision.

**A New Operation for Congenital Ptosis.**—Gillet de Grandmont (*Rec. d'Ophthal.*, April, 1891) describes his operation as follows: (1) After having seized the upper lid with a Snellen's forceps, the skin is cut through parallel to the free border of the lid, the incision being three or four millimetres from the border, and about two centimetres and a half long. (2) Raise up the two cutaneous flaps, detach and excise the corresponding portion of the orbicular muscle, so as to expose the entire tarsus from the ciliary border to and including Sappey's orbito-palpebral muscle or tendon of the levator palpebræ. (3) Cut through the entire thickness of the tarsus, for an extent of two centimetres, parallel to the free border of the lid, and from two to four millimetres from it. (4) Describe a curvilinear incision, with cavity downward, extending from one end of the first incision of the tarsus to the other. This incision should extend through all the tissues of the lid, including the conjunctiva. (5) The upper or orbito-palpebral flap should then be stitched to the lower or tarsal flap by three sutures without touching the skin.

**Fatal Hemorrhage in an Infant after Scarification of the Conjunctiva.** (*New York Medical Journal*, 1892, lv. 15.) By Dr. I. A. Shirley. —The patient, a female, when about six weeks old had a purulent conjunctivitis, for which the palpebral conjunctivæ were freely scarified and sulphate of copper in substance was applied. Both parents were syphilitic. When called to see the case, fifteen hours after the scarification, blood was flowing very freely from the conjunctival incisions, and this hemorrhage could not be stopped by the local use of hot water, ice, and persulphate of iron, in powder and in solution. Therefore, the everted mucous membranes were approximated in such a way that a needle could be passed beneath the bleeding areas, and the upper and lower conjunctivæ were firmly united by

four interrupted sutures in either eye. Hemorrhage was now effectually and permanently stopped, but the child died two hours later.

Soft Cataract cured by a Single Needling. (*Denver Medical Times*, July, 1892.)—Dr. David Webster reports a case of soft cataract in a man of twenty, which was cured by a single needling. A Knapp's knife-needle was used, and the anterior capsule was opened by a horizontal incision one-eighth of an inch long. The pupil was kept dilated with atropine, and at the end of four months the lens was entirely absorbed, the pupil was clear, central, and circular, and vision with correcting lenses was  $\frac{15}{20}$ .

Duties of Midwives, Nurses, and Health Officers, as defined by the Legislature of Rhode Island.—*Duties of Midwife or Nurse*.—SECTION 1. Should any midwife or nurse, or person acting as nurse, having charge of an infant in this State, notice that one or both eyes of such infant are inflamed or reddened at any time within two weeks after its birth, it shall be the duty of such midwife or nurse, or person acting as nurse, so having charge of such infant, to report the fact in writing within six hours to the health-officer, or some qualified practitioner of medicine, of the city or town in which the parents of the infant reside.

*Duties of Health-Officer*.—SECTION 2. Every health-officer shall furnish a copy of this act to each person who is known to him to act as midwife or nurse in the city or town for which such health-officer is appointed, and the Secretary of State shall cause a sufficient number of copies of this act to be printed, and supply the same to such health-officers on application.

*Penalty*.—SECTION 3. Every person who shall fail to comply with the provisions of this act shall be fined not exceeding one hundred dollars, or imprisonment not exceeding six months, or both.

SECTION 4. This act shall take effect July 1, 1892.

Color-Blindness and its Remedy.—Dr. A. E. Wright (*Medical Record*) accepts the theory of Hering provisionally regarding the perception of color. The writer has found total and the yellow-blue color-blindness very rare, but the green-red form common. As most color-blind men are not perfectly so but can readily distinguish yellows and blues, he suggests that, instead of using the green and red lights for signals, as is now done universally, the red lights should have a yellowish and the green lights a distinctly bluish tinge.

The Ophthalmometer of Javal and Schiotz and the Diagnosis of Astigmatism.—Under this heading Dr. J. H. Woodward (*New York Medical Journal*, July 16, 1892) reports thirty-one cases in which he had painstakingly used this instrument.

In twenty-two cases atropine was used, in seven no mydriatic was used, and the remaining two had been operated on for cataract. In the twenty-two cases, sixty-three comparative examinations were made. In nineteen



per cent. the trial lenses agreed with the ophthalmometer ; in seventy-six per cent. they showed less astigmatism, and in five per cent. more. In seventeen per cent. the axis as determined by the ophthalmometer was not confirmed by the test lenses. In three cases the latter showed no astigmatism, and two showed none with the former. In one eye the change of axis occurred during the examination. In eighteen eyes the principal meridians were not at right angles according to the ophthalmometer.

In the second series, of seven cases, twenty-one examinations were made. In twenty-three per cent. the trial lenses and ophthalmometer agreed, but in seventy-seven per cent. the lenses showed less astigmatism. In the two cases which had been operated on for cataract the ophthalmometer showed 2 D. more of astigmatism than the lenses. The author thinks the ophthalmometer a valuable adjunct to other methods of diagnosis only. The sources of error in its use are: the anterior surface of the cornea is ellipsoidal, not spherical ; the ophthalmometer does not deal with that portion of the cornea through which the visual line passes ; it gives no information respecting the posterior surface of the cornea which may not be parallel to the anterior ; it does not measure lenticular astigmatism, and in the adjustment of the instrument and the overlapping of the reflectors an error of + or — 0.25 D. is hard to eliminate.

**The Kniophthalmoscope.**—At the Congrès d'Ophthalmologique (*New York Medical Journal*, July 16, 1892) Dr. Landolt exhibited an instrument to which he gave this name. It consists of transparent glass (six inches by five inches), a parallelogram in shape, mounted on a handle. The glass has letters scratched on its surface. The patients read these while the examiner, looking through the glass, observes the movements of the eyes.

**Removal of Steel from Iris after Twenty-seven Years.**—Dr. George F. Keifer (*Indiana Medical Journal*, July, 1892) reports the case of a patient, who in 1864 was struck in the eye by a small piece of steel, which penetrated the cornea and embedded itself in the iris midway between the pupil and the outer margin. The irritation subsided in four weeks. In 1886 the eye became inflamed, but this passed off under treatment. The vision was unaffected. In December, 1891, iritis recurred ; treatment was not effective ; the other eye became involved, and an operation was determined on. An incision was made in the cornea and a magnet introduced, but as it failed to dislodge the particle, it was withdrawn and the steel seized with a pair of Liebreich's rotating iris forceps and withdrawn by gentle to-and-fro motion. A perforation was left in the iris corresponding to the former seat of the steel. The patient recovered quickly and the vision was  $\frac{1}{15}$  in each eye. No subsequent attacks of iritis have occurred.

**An Overlooked Factor in the Production of Conjunctivitis.**—Under this title Dr. Julius Pohlman (*Buffalo Medical and Surgical Journal*,

July, 1892) advances the idea that the effect of heat in producing conjunctivitis is due to dryness of the atmosphere and not to its temperature. He made several experiments, and found that the disagreeable eye-symptoms, caused by a hot, dry atmosphere, were at once relieved by the instillation of a drop of water. He thinks this accounts for a temperature of 70° F. in a room causing conjunctivitis when a summer heat of 95° or 100° has no such effect.

## DISEASES OF THE LARYNX, NOSE, AND SURROUNDING STRUCTURES.

IN CHARGE OF J. PAYSON CLARK, M.D.,

Physician to the Throat Department of the Boston Dispensary; Assistant Physician for Diseases of the Throat, Massachusetts General Hospital.

Etiology of Pseudo-Membranous Rhinitis. (*Archiv f. Kinderheilkunde*, vol. xiv., parts iii. and iv.)

A bacteriological examination has been only twice reported in cases of false membrane following the use of the galvano-cautery. In one the staphylococcus pyogenes aureus was found; in the other a coccus very much resembling it (see abstract in the March number of the INTERNATIONAL MEDICAL MAGAZINE.—REV.). Dr. Carl Stamm has examined the membrane from three cases of primary fibrinous rhinitis. In one case there was also membrane on the tonsils. The Löffler diphtheria bacillus was found in each case (although the cases ran a very mild course, there being no fever, no enlarged glands, or other constitutional disturbance). The identity of the bacillus was proved beyond question. This affection can be distinguished from ordinary diphtheria only by its course, as a chronic variety. All cases of fibrinous rhinitis should be examined bacteriologically. If the Löffler bacillus is found the prognosis should be guarded and all customary precautions to prevent infection taken. The writer refers in a note to a case of supposed simple fibrinous rhinitis, recently reported by Concetti, in which the diphtheria bacillus was found.

Etiology of Stomatitis Aphthosa. (*Archives of Pediatrics*, May, 1892.)—After rejecting various causes popularly given for this affection, Dr. Forchheimer considers the common belief of its connection with some digestive disturbance. This connection could exist only on the supposition that the digestive disturbance could cause some abnormality in the salivary secretion which would be the direct cause of the ulcerations. In Europe the connection between the foot-and-mouth disease of cattle and this affection has been proved by experiment. But as foot-and-mouth disease is extremely rare in this country and aphthous stomatitis common there must be another cause for the latter disease. A bacteriological examination of the aphthæ, when positive, shows only the presence of pus-producers. We



must therefore look for some chemical agent which, carried in the circulation, may produce the eruption. As aphthæ are frequently associated with other diseases, as pneumonia, gastro-intestinal disturbances, the acute exanthemata, etc., multiple causes seem quite probable. The writer inclines to consider aphthæ as nothing else than an eruption of herpes, since we often find aphthæ associated with herpes facialis. The vesicle of herpes in the mouth has the same appearance as an aphtha. The etiology of the two affections appears in most instances the same. The pathological lesion of herpes has been found to be some irritative change in the ganglion from which the nerve supplying the affected part arises or in the nerve itself. It is not unreasonable to suppose the exciting cause to be the result of bacteriological activity or some faulty process of digestion. At present this is only an hypothesis. The disease is probably not contagious. When it occurs in several members of the same family it seems more natural to consider the same cause as operating in all. Conclusions: "Stomatitis aphthosa is a disease produced by some form of deleterious material in the circulation. This material may have its origin in various processes, bacterial or otherwise. This material may, therefore, be of various kinds. This material acts upon a nerve or nerves or upon a nerve-centre or nerve-centres, producing an herpetic eruption which is the aphthous process."

Hemorrhage following Tonsillotomy; the Enucleation of Enlarged Tonsils. (*Brit. Med. Journ.*, June 4, 1892.)—Bilton Pollard recommends ligature of the bleeding vessels as surer and safer than styptics or local pressure in hemorrhage after tonsillotomy, and mentions two cases recently seen by him in which this procedure was successfully carried out. He then describes the method of enucleation as follows: "The surgeon places the tip of his forefinger between the upper and back part of the tonsil and the posterior pillar of the fauces, tears through the mucous membrane at that point, then peels off the tonsil from the wall of the pharynx until it hangs loose in the throat by a short pedicle attached to its lower anterior part. The pedicle may be either torn through by twisting or snipped across with a pair of scissors. The operation is often almost a bloodless one." This method is useful in cases where the tonsil, though causing much obstruction to respiration, is hidden between the pillars of the fauces so that the guillotine cannot be applied. The operation is a very old one reintroduced to the profession by an Italian surgeon in 1861.

The Pin Sensation in the Throat. (*New York Med. Journ.*, June 11, 1892.)—Dr. John Dunn reports five cases of the above condition. In the first case, reported at some length, the patient had the sensation of a pin in the throat on swallowing. The sensation was referred to the right side on a level with the deepest part of the hyoid fossa. After treating various conditions without effect, touching a small red elevated area at the back of the pharynx was found to cause the sensation. An interesting

point was that this spot was described as lower down than various points really below it. Galvano-cauterization gave relief only while the wound was healing. The second patient had a similar sensation on the left side of the throat caused by a small somewhat inflamed "granulation" above the enlarged left tonsil. The other three cases were all caused by small hypertrophied masses of lymphoid tissue in some part of the pharynx. The interesting point in all these cases is the fact that the patients all erred in placing the cause of the sensation lower than it really was. Treatment appears to have been successful in all but the first case.

**Endolaryngeal Removal of Multiple Papilloma of the Larynx by a New Method.** (*Deutsche Med. Wochenschr.*, May 19, 1892.)—Dr. L. Lichtwitz describes a method for the removal of these growths, which has for its basis the use of a fenestrated intubation-tube. After determining the position of the growth by means of the laryngeal mirror, a tube of suitable size, with an opening to correspond to the position of the growth, is introduced into the larynx. The growth being then in the window, it can be removed by any suitable laryngeal instrument.

It is important, especially in small children, that the tubes be cylindrical, with thin walls, for the sake of room. The projecting rim of the tube rests on the ventricular bands. For tumors of the cords the centre of the window must be just below the rim; for subglottic tumors, lower. The inside of the tube should be black. A removal of the growth may be attempted even if it is impossible to make an examination after the introduction of the tube, as no harm can be done. The writer reports one case where this method was used with entire success. Since it immobilizes the cords, this method is useful for subglottic tumors. The writer suggests its use in cases where lengthy work in the larynx is necessary.

**The Diagnosis and Treatment of Laryngeal Cancer.** (*Deutsche Med. Wochenschr.*, May 12, 1892.)—Although the diagnosis of a typical case of laryngeal cancer is comparatively easy, there are often cases, Dr. Gottstein says, which are very difficult, as in the early stages, where the surrounding inflammation is slight. Carcinomatous infiltration, however, without tumor formation is oftener seen than the reverse. The writer mentions a case in which carcinomatous infiltration existed for three years before there was any tumor. Diminished mobility of the affected cord is not a valuable diagnostic sign, being absent in some cases and often present in infiltration of another character. Removal of fragments for microscopic examination is generally not possible; in fact, the diagnosis is only to be made by exclusion. When tuberculosis, syphilis, lupus, etc., can be definitely excluded, carcinoma is to be assumed.

Only positive microscopic results are of value; negative have little or no significance. Glandular swellings, pain, tenderness, dysphagia, hoarseness are of no great diagnostic value. The writer favors the earliest and



most radical operation possible. On this account the endolaryngeal operation is applicable only in very rare cases. Splitting the larynx and removing the growth with its base, or, when more extensive, partial or total extirpation of the larynx are the operations to be preferred. Contra-indications to operation are a high grade of marasmus, great extension of the process to neighboring parts, and diseases of the respiratory organs. Enlarged glands, if operable, are not a contra-indication.

**A Case of Total Extirpation of the Larynx.** (*Berlin. klin. Wochenschr.*, May 23, 1892.)—Dr. Julius Wolff reports a successful case of this operation, in which the glottis was almost entirely filled by a malignant growth. Space does not permit the giving of the interesting details of the operation nor of the after-treatment here. The writer believes it is no longer true that it is better not to operate where the whole larynx is involved. He considers a case favorable for operation where the glands are still free and the pharynx is not too much implicated. Of course the earlier the operation is done the better. The course of the writer's case was without reaction, which was due in great measure to three circumstances: operating with the head dependent, utmost care in avoiding too great loss of blood, and finally the position of the patient with low-lying head and high-lying tracheal wound (according to Bardenheuer) after the operation. Great hemorrhage is avoided by methodical wound compression. Every drop of blood that can be saved the patient is important. Seven months after the operation the patient is free from a recurrence, his physical condition is excellent, and his appearance good. He speaks well with an artificial larynx.

**Subglottic Sarcoma of the Larynx; Intralaryngeal Operation; Cure.** (*Berlin. klin. Wochenschr.*, May 23, 1892.)—Dr. J. Scheinmann reports the case of a man, sixty-six years old, with a small, grayish-yellow growth (sarcoma) under left vocal cord. It was removed in two sittings, and the wound healed quickly under pyoktanin. A small recurrence was removed a month later. It is now a year and a half since last operation, and there is no return. The prognosis of these growths is generally bad. Cases of sarcoma of the larynx, diagnosed early, can be submitted to an intralaryngeal operation so long as one can hope thus to remove all the growth, and provided a careful oversight is kept up for recurrence.

**Two Cases of Lupus of the Larynx.** (*Rev. de Laryngol., d'Otol., etc.*, June 1, 1892.)—M. Garel reports a case of primary lupus of the larynx, the seventh on record. The epiglottis, ary-epiglottic folds, and ventricular bands were the parts especially affected. Examination of a piece removed conclusively proved the case to be one of lupus.

In the second case lupus of the left cheek was followed by lupus of the larynx. The chief interest in this case lies in the fact that immediately

after an attack of facial erysipelas the appearance in the larynx and also the voice improved.

It is not known whether the larynx was invaded in the course of the erysipelas.

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#### CORRECTION.

On pages 656 and 657 of the July number "Euphoren" should be Europhen.  
—EDITOR.

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### DERMATOLOGY.

IN CHARGE OF J. J. PRINGLE, M.B. (EDIN.), F.R.C.P. (LOND.),

Physician to the Department for Diseases of the Skin in the Middlesex Hospital, London.

**Moniliform Hairs (Monilethrix).**—Dr. Wallace Beatty and Mr. Alfred Scott, of Dublin, contribute an interesting *résumé* and critical digest of the knowledge of this subject to the *British Journal of Dermatology* (June, 1892). After a brief abstract of the twenty-four cases on record and of the views of the various authors regarding them, they report an additional case in a boy, aged seven years, which presented the most salient features of the majority of the cases previously observed. A portion of the scalp was excised, and sections of it brought the following facts to light: The hair-follicles extended to different depths; at least two nodes and internodes existed in each follicle; a few healthy hairs were seen besides the nodose ones; the difference in calibre between nodes and internodes varied widely.

In the fibrous coat of the follicle and outer root-sheath nothing abnormal was noted. Henle's layer of the internal root-sheath was healthy, but there was great thickening of Huxley's layer opposite the internodes,—*i.e.*, where the hair was of small calibre Huxley's layer was thick, and *vice versa*. The cuticle of the hair was not well seen opposite the nodes. Pigment was uniformly distributed in both nodes and internodes. No micro-organisms of a specific nature were discovered.

The principal conclusions of the authors are: 1. That at one time the papillæ over the entire scalp are forming nodes, at another time, internodes; this supposition is based on the fact that in all the hairs present in the sections, nodes rest upon the papillæ. 2. The only sheath which varies with the nodes and internodes is the inner (Huxley's) layer of the internal root-sheath. 3. The accumulation of pigment in the nodes which has been noticed by different observers in the shafts of the hairs is apparent rather than real. Behrend's theory that the nodes are formed mechanically by the entrance of air into the follicle and the fissuring of the hair is successfully combated, while there is no evidence whatever of the causation of the disease by a micro-organism. The paper is illustrated by two micro-photographs.



The Bacteriology of Epidemic Exfoliative Dermatitis. (*Brit. Journ. of Derm.*, April, 1892.)—Dr. J. S. Risien Russell investigated the curious epidemic recently reported by Dr. Savill from the bacteriological side.

His method of procedure and results were as follows:

1. The skin of patients suffering from the disease was examined microscopically for micro-organisms. Various stains were employed; the prevailing micro-organism present in all the sections was invariably a diplococcus, which was especially abundant in the deeper layers of the skin.

2. Artificial nutrient media were inoculated with blood taken during life in some cases and after death in others. In the former case the results were negative, but in blood taken from the heart from a fatal case a diplococcus, similar to that found in the skin both in appearance and behavior, was present, and no other micro-organism.

3. Cultures from the under surface of epithelial flakes, removed from patients who were desquamating, were made on both agar, potato, and gelatin, and microscopic examination of cover-glass preparations of them showed them to consist of the diplococcus present in the skin and blood.

4. Animals were inoculated with pure cultures of the organism, but in every case the result was negative. It will be remembered, however, that Dr. Savill's dog is reported to have had a typical attack of this disease, and Dr. Savill is stated to have succeeded in communicating this disease to a rabbit, from whose blood typical cultures of the organism were made.

5. Control experiments were made: (a) sections of the skin of patients who were not suffering from the disease were examined for the micro-organism, and (b) artificial nutrient media were inoculated with blood taken from the cavities of the hearts of patients who died of some other disease, but in both cases no results were obtained. As a further control experiment the blood of a typical case of pityriasis rubra was examined, but the diplococcus was not present.

*Characters of the Micro-Organism.*—It is a diplococcus almost as large as Friedländer's diplococcus of pneumonia, its segments being ellipsoidal or rod-like, according to its stage of development. No capsule could be demonstrated. It stains most readily with an alcoholic solution of gentian violet, and is not decolorized by Gram's solution. It grows at the ordinary temperature in all nutrient media, but most readily at 20° C., and at that temperature there is evidence of commencing growth at the end of twenty-four hours. In gelatin cultures it presents at first a great resemblance to colonies of the streptococcus of erysipelas, but in forty-eight hours it loses this character to form a uniform slightly raised growth with even borders. It is slightly bluish in color and distinctly fluorescent.

*It does not liquefy gelatin*, and requires oxygen to enable it to flourish, as may be seen by its behavior in "stab-cultures."

The main differences between the diplococcus and staphylococcus pyogenes albus—the organism which it most closely resembles—are (1) the latter exist as cocci, diplococci, masses of cocci, and chains; (2) it also lique-

fies gelatin rapidly, and (3) it produces a specific effect on animals with far greater ease and certainty than this diplococcus.

Dr. Russell concludes that the constancy with which the organism is found in connection with the subjects of the epidemic skin-disease forbids his believing that its presence is merely accidental, but, as a specific effect on animals had only once been obtained, he is not in a position to affirm that it is the cause of the epidemic disorder.

On the Capillary Lymphangiomata of the Skin and the Relationship of Lymphangioma Capillare Varicosum to Angiokeratoma. (*Monatshefte für praktische Dermatologie*, Band xiv., No. 5, March, 1892.)—Ludwig Török, of Buda-Pesth, returns to the study of this question of great interest to dermatologists, his former work upon it having been in conjunction with Dr. Finch Noyes, of Melbourne. They then divided the lymphangiomata into three classes: (1) the varicose lymphangiomata; (2) the tuberous or fibromatous lymphangiomata; (3) the cavernous lymphangiomata. To the first class are relegated the classical cases of Hutchinson, Tilbury Fox, Colcott Fox, Köbner, Morris, Noyes-Török, Crocker, Walsham, Hayes, Schmidt, Smet, and Boeck. The second class contains the "*lymphangioma tuberosum multiplex*" of Kaposi, which is now generally regarded as identical with the *hydroadenoma* of Jacquet, Lesser, Beneke, Philippson, and Besnier. In the third category are placed the cases of Van Harlingen and Pospelow, in which the tumors vary from the size of a pin's head to that of a pigeon's egg. They are of bluish violet color, compressible, and feel to the touch like an air-cushion. When incised, cloudy, gelatinous fluid exudes. Their microscopic appearances are those of a cavernous lymphangioma.

Besnier and Jacquet have questioned the accuracy of Török's views, and consider some of his cases as examples of *pseudo-lymphangioma*, in which there are no primary lymph-vascular growths at all, but true hæmangiomata, in which blood-cysts have become filled with serum and converted into clear vesicles.

Török points out, however, that in his cases, classed as lymphangioma circumscripta, the smallest lesions are generally clear vesicles; that only some of the vesicles in Besnier's and Smet's cases were red or purple, and that microscopically the formation of vesicles is quite subordinate to the lymphatic new growth. If the cysts did begin as hæmatomata, their red color would be recognized clinically, and their evolution into serum cysts watched, but no such change has ever been observed.

Mibelli has pointed out the similarity in construction between angiokeratoma and the capillary lymphangiomata, but while the former starts as a neoplasm of blood-vessels, showing clinically as red points, the latter starts in the lymph-vessels, and appears as clear vesicles, with which, however, some dilated blood-vessels are usually intermingled. In angiokeratoma, on the other hand, a certain amount of lymphatic vessel-dilatation is always



present. The tumors then in all cases are more or less "mixed." The cases of Besnier and Thibierge (*hæmatolymphangioma capillare varicosum*) thus form a connecting link between the capillary lymphatic angiomata and angiokeratoma or *hæmangioma capillare varicosum keratoides*.

The paper contains a reference to all recorded cases, and exhibits remarkably the writer's erudition and critical acumen.

## HYGIENE AND BACTERIOLOGY.

IN CHARGE OF A. C. ABBOTT, M.D.,

First Assistant in the Laboratory of Hygiene, University of Pennsylvania.

Upon the Alterations in the Animal Organism under the Influence of Attenuated Anthrax-Cultures. (Ueber die im thierischen Organismus unter dem Einfluss abgeschwächter Anthraxkulturen stattfindenden Veränderung. *Inaugural Dissertation*, St. Petersburg, 1892. Abstracted from *Centralblatt für Bacteriologie und Parasitenkunde*, Bd. xi., 1892, No. 23.) By Dr. B. Segal.

Confirmatory of a group of observations that have been made in recent times upon the different reactions of the animal organisms to the influence of infectious organisms of varying degrees of virulence are the results of experiments contained in this paper. The author arranged a series of experiments on mice and rabbits with both virulent anthrax-organisms and those that had been attenuated by the method of Pasteur. In rabbits a very conspicuous difference could be noticed between the local reaction at the point of inoculation following the introduction of fully virulent organisms and of those that had been deprived either in whole or in part of this property. This difference, which consisted of a local aggregation of leucocytes, was inversely proportionate to the degree of virulence of the culture employed. Highly virulent cultures caused only a very insignificant local infiltration of leucocytes; whereas, after the use of attenuated organisms the local reaction was more or less intense, consisting of dilatation of the vessels, emigration of leucocytes, and swelling of the subcutaneous tissues.

Among the local effects of inoculation with cultures of varying degrees of attenuation there could be noticed a tendency towards an increase of the local condition proportionate to the degree of attenuation of the culture used. After the use of cultures of fourteen to twenty-four days' attenuation the aggregation of leucocytes at the seat of inoculation assumed in some cases the characteristics of small abscesses, whereas cultures attenuated only through six days' treatment caused but slight or no accumulation of leucocytes at the point of introduction. The virulent cultures have, according to Segal, a negative chemotactic affinity for the leucocytes, while the attenuated organisms possess positive chemotactic affinities for these cells. In the latter case certain of the leucocytes are seen and contain individual

bacilli; but it is Segal's opinion that other agents than the leucocytes are concerned in bringing about the destruction of the bacilli.

With mice the conspicuous local differences could only be demonstrated by the employment of organisms absolutely without virulence for these animals. So long as the culture is of a sufficient degree of virulence to cause the death of the mouse, even though death may be very much postponed, just so long is the local reaction either very limited or entirely absent, but when a degree of attenuation is reached that no longer causes the death of the animal, there appears the localized infiltration of leucocytes about the seat of inoculation. In these experiments an increased ratio was noticed between the degree of local reaction and the intensity of the general constitutional infection.

**Bacteriological Study of Inflammatory Processes of the Liver.** (Studi batteriologici sopra alcune forme del processo infiammatorio del fegato. *Rip. Med.*, September, 1890.) By Ghillini.

The author presents the results of bacteriological study of the inflammatory processes of the liver. One case was that of suppuration in connection with an echinococcus cyst, the other a chronic cirrhosis of the liver. In the first case the streptococcus pyogenes was found both microscopically and by culture methods; from the second, in addition to the ordinary saprophytes, the bacillus pyogenes foetidus was isolated.

The author calls attention to the experience of Kartulis, who found the staphylococcus pyogenes aureus in four out of ten cases of idiopathic liver abscess, and the staphylococcus albus once in the same group, and likewise to the observation of Burci, who found in a suppurating echinococcus cyst the bacillus pyogenes foetidus in pure culture. It is Ghillini's opinion that the bacillus pyogenes foetidus cannot be considered as without importance in relation to these spontaneous suppurative processes of the liver.

**Upon the Parasites of the Red Blood-Corpuscles.** (Ueber die Parasiten des rothen Blutkörperchens. *International Beiträge zur wissenschaftlichen Medizin*, Bd. iii., 1891.) By Celli and Marchiafava.

This contribution is a general review of the subject, and is mainly of interest because of the conclusions arrived at. The authors believe that the parasites of the red blood-corpuscles of man, birds, and cold-blooded animals, though belonging to the same general subclass, are still by no means identical.

**An Outbreak of Trichinosis in Colerain.** (*Boston Medical and Surgical Reporter*, vol. cxxvii., No. 3, pp. 61-63.) By Frank H. Drew, M.D.

A very fitting companion-piece to the contribution of McCollom is that of Dr. Frank H. Drew, of which the following is an abstract. The epidemic occurred at Willis Place, a manufacturing village within the limits of Colerain, Massachusetts. The number of individuals affected is estimated



by the writer at approximately fifty, though in but thirty-six was the diagnosis sufficiently established to speak with certainty. Seven of the thirty-six were seen by Dr. Drew.

As soon as a correct diagnosis was reached, efforts were made to trace the source of the diseased pork, but it was so long after the disease broke out that none of it could be discovered. Not much help or co-operation can be obtained from butchers in this respect, for they seem to feel that blame will attach to themselves and that their trade will be lessened if the facts are known,—which seems to be justified in the present instance, as it has been nearly impossible to sell any form of pork or sausage to the inhabitants of the block since the epidemic. From the inquiries made it seems most probable that the trichinæ ingested were contained in Bologna sausage. It is admitted by all that they used this particular form of sausage, and large amounts were consumed in the families where the fatal cases occurred. It is eaten just as it comes from the manufacturer, at whose hands it does not receive much cooking, as this impairs the flavor. These sausages, which are very cheap, were obtained from the local butchers, who got them from Chicago.

As Secretary of Agriculture Rusk has established an official laboratory in Chicago for the examination of pork intended for export, a larger proportion of trichinous meat will be sold in the American market, and the disease will be likely to prevail to a greater extent than heretofore. What becomes of the pork condemned as unfit to be exported? It is worked up into these cheap sausages, which were the probable cause of this epidemic.

The occurrence of so great a number of cases in one small community in our midst will serve to show how liable we are to encounter cases of the disease, and the importance of directing our attention to its detection, when we shall probably find that trichinosis is of more frequent occurrence here in Massachusetts than is shown by statistics.

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## PATHOLOGY.

IN CHARGE OF ALLEN J. SMITH, A.M., M.D.,

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**Myositis Ossificans Progression.** (*Virchow's Archiv*, Band cxxviii., Heft 3.)—Rabek, house-surgeon in the Warsaw Children's Hospital, details a case of this rare malady. It occurred in a female child of healthy parents. When it was but a month old there appeared a number of hard swellings on the back of the child's head, which gradually disappeared. When she was six months old the parents first noted the existence of hard, stony masses in the muscular structure of the back, and from that time these increased in size and number. The shoulders, dorsal region, and arms were especially invaded, particularly the latissimi dorsi and biceps brachii

dextris muscles, these being completely changed before the child's death. The facial muscles, those of the lower extremities, abdomen, diaphragm, and heart did not take part in the change. The child died at her home when three and a half years old. This disease is, as far as is known, a progressive one, ending invariably in death. The earliest changes are of a low-grade inflammatory character, whereby the connective tissue of the muscles is increased. This becomes infiltrated with calcareous matter, the muscle-substance gradually disappearing.

**Anise-Oil as an Embedding Material for the Freezing Microtome.** (Anisöl als Einbettungsmittel beim Gebrauche des Gefriermikrotoms. *Centralbl. f. Bakteriolog. u. Parasitenk.*, Bd. xii., No. 1.)—Kühne, of Wiesbaden, after commenting upon the fact that in using the freezing microtome, if the tissue be frozen completely, the knife is very apt to ride over it and cut a section of uneven thickness, and that when the freezing is of the degree most favorable for cutting, the tissue is apt to become separated from the freezing plate, suggests that this difficulty may be obviated by substituting anise-oil for water, the former becoming solid at from 6° to 18° R. (45.5° to 72.5° F.). In course of time, from exposure to the oxygen of the atmosphere, lower temperatures may be required to solidify the oil, but when it is fresh and pure it congeals almost at the ordinary temperature of the room. A small bit of the tissue, about an eighth or twelfth of an inch in thickness, is placed in the oil after careful hardening in alcohol. In about twelve or twenty-four hours it is thoroughly impregnated with the oil, the clearness of the specimen being regarded as the test. The plate of the microtome is carefully cleaned and wiped off with a rag wet with alcohol, and dried; a few drops of the oil are placed upon it, and upon this the bit of tissue to be frozen. A few pumps upon the ether-spray apparatus suffice to solidify the mass, and sections may be made. From the knife the frozen sections should be placed in a dish containing alcohol to remove the oil, care being taken to prevent contact of alcohol with the embedded mass on the microtome, as it would thus be dissolved and the tissue loosened from the freezing-plate. The further preparation of the specimen rests with the operator, excellent results in staining of both tissues and bacteria being possible with ordinary care.

**Cystic Degeneration of the Muscular Fibres of the Heart.** (*American Journal of the Medical Sciences*, May, 1892.)—Arthur V. Meigs, of Philadelphia, who in a previous number of the same journal (June, 1891) called attention to the existence of central capillaries in the cardiac muscle-fibres as a normal histological feature, describes under the above terminology a pathological condition, which he considers in logical relation with the normal arrangement referred to. He has noted that in the hearts of patients dying from very varied causes and at widely varying ages, upon microscopic examination many of the fibres were apparently but hollow shells. This



in his experience is particularly liable to be the case in the fibres of the papillary muscles, and in the muscular walls of the organ near the endocardium or pericardium. The fibres on transverse section thus present the appearance of rings, sometimes retaining very little of their former substance. He is able also to demonstrate the same pathological condition in longitudinal sections of the fibres. In these hollow fibres the muscle nuclei are not infrequently to be seen, usually accompanied by a variable amount of granular matter. The author, having taken pains to exclude faults of methods which might have aided in producing the appearance in question, continued his examinations in normal cardiac muscle. Here he was able to demonstrate that the cardiac muscle fibres are not solid cylinders as supposed, but are penetrated by capillary blood-vessels. The author believes that by the occlusion of these capillaries at several points the blood within their lumina undergoes changes to the production of the granular matter mentioned as found in the spaces described. On account of consequent nutritional disturbances the muscular substance of the fibre is disintegrated, and gradually the space becomes larger and more prominent, as in the specimens observed. The relation of these changes to any particular group of symptoms is uncertain. In the instances met by Dr. Meigs the clinical diagnoses were organic heart-disease, Bright's disease, typhoid fever, ulcerative endocarditis, and some of the wasting diseases of infancy. In specimens which he has examined he has been unable to discover the condition in cases of brain-syphilis, sarcoma, general miliary tuberculosis, Bright's disease, pulmonary phthisis, typhoid fever, pneumonia, dysentery, epithelioma of the bowel, and aneurism. It is thus seen to be of indefinite and apparently irregular occurrence in relation to the major malady.

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## CLIMATOLOGY.

IN CHARGE OF GUY HINSDALE, M.D.,

Lecturer on Climatology in the University of Pennsylvania, Philadelphia.

Report of the Chief of the Weather Bureau for 1891. By Mark W. Harrington, Washington, 1892.

The increasing interest in climatology and meteorology is well shown in Prof. Harrington's report. These subjects are now taught in twenty-seven colleges and universities in the United States, and the policy of the government is to afford every facility for diffusing knowledge of the principles of these subjects. The daily weather maps are now issued at over sixty of the more important stations. The library of the Weather Bureau at present contains about twelve thousand books, exclusive of pamphlets, relating mostly to meteorology, climatology, electricity, and magnetism, arranged, classified, and catalogued for ready reference. "As it is the desire of the chief of the bureau to make the valuable collection of printed liter-

ature of meteorology and climatology in the library useful to the fullest extent, the privileges of the library are extended to private investigators in any part of the country, under such restrictions only as will insure the careful usage and safe return of the volumes loaned."

An index of all observations made and recorded in the United States belonging to the records' division was completed a year ago under the direction of General Greely. The very valuable collection of foreign observations in the library, covering every portion of the globe and extending over long series of years, is now being catalogued. The card index is arranged alphabetically according to the place of observation; each card gives a fairly complete history of the station in tabular form, in brief, its location, elevation, the character and frequency of the observations made at the station, the date of beginning and ending of each series of observations, and the reference to the book in the library in which this information is printed. The meteorological history of any station on the globe of which there is any record is instantly available. The index is thus far complete for India, the East Indies, Australasia, China, and Japan, making available for ready reference histories of over five thousand stations, each station possessing observations extending, on an average, over a period of about twelve years. When complete the index will save much time now spent searching for records, while climatological research will be stimulated when it becomes known that there is such an index and that access to the records in the library is allowed, under necessary restrictions, to all students of meteorology competent to use them.

**Notes on the Climate and Meteorology of Death Valley, California.**  
By Mark W. Harrington, Chief of the United States Weather Bureau,  
Washington, 1892.

This remarkable valley forms a part of the northern margin of the Mojave desert. It is about seventy-five miles long and is shut in by bold ridges of mountains, the Sierra Nevada range separating it from the Pacific slope. Its extraordinary depth, exceeding one hundred feet below sea-level, its heat and dryness, and the melancholy fate of explorers who have perished from thirst within its limits, have invested it with so much interest that the Weather Bureau maintained a meteorological station in this valley during the five months of the summer of 1891. It is so arid that few plants and, among animals, only horned toads, lizards, and snakes are able to survive. The temperature in 1891 rose to  $122^{\circ}$  in the shade. The average maximum for July and August was  $115^{\circ}$ . The relative humidity at 8 A.M. averaged thirty per cent., and at 8 P.M., sixteen per cent. The air is not stagnant but in unusually active motion, the heat being increased by occasional hot blasts from the south. Cloud-bursts not unfrequently occur. "They are small and concentrated storms of the utmost fury, which gather suddenly about the mountains in the hottest weather. An ominous cloud forms with great speed, grows black and full of lightning, sags down



to the mountains, and releases a flood of water." Forty men were employed for five years in the borax works located in this valley, and they considered its climate healthy. The winter is cool and salubrious with an inch or two of rainfall. The five months of summer are so hot and arid that men exposed to the heat of the sun's rays have not unfrequently been driven insane.

**Change of Air and Baths in the Summer Diarrhœa of Children.** (*Medical News*, June 18, 1892.)—Dr. Simon Baruch points out the advantages of change of air for relieving the disorders due to high temperatures, marked atmospheric humidity, and vitiated atmosphere. The floating hospitals and sea-side sanitariums conducted by the St. John's Guild, the Babies' Shelter, and other charities furnish thousands of children in New York with the opportunity to escape for a day or longer from the depressing influence of hot and impure air. Dr. Baruch says, "While for reasons already mentioned a change is imperative in almost all cases of summer diarrhœa of the children residing in crowded tenement-houses, it is not so important in those cases whose environment is more favorable for home-treatment. Indeed, the change from a comfortable home to a country hotel, which is apt to be overcrowded, is not to be advised without careful reflection. It is not an infrequent occurrence to order a sick child away, when the symptoms become alarming, without time for preparation or due inquiry. The consequences are discomfort from immaturity of plans, great expense, disturbance of the family, and consequent anxiety and unhappiness for the parents and friends. Before deciding that the benefits which are likely to accrue to the little patients warrant these measures, it is imperative to be satisfied that we have exhausted all other methods of treatment, particularly sterilization of food and intestinal irrigation." Explicit directions are given as to bathing and the use of the wet pack. These measures ought to be more freely adopted.

**The Doubtful Efficacy of a Hot, Dry Climate in Disease.** (*Climatologist*, June, 1892.)—Dr. Thomas Darlington, of Bisbee, Arizona, discusses this question at some length. As an instance of the great diurnal variations of temperature in such inland climates he relates his experience as follows: "One may be riding in December in Southern Arizona with the sun so hot as to necessitate removal of the coat; and then, going under a cloud, we may even have a flurry of snow, so great is the change. . . . On December 24, 1889, while riding at mid-day, my Hicks thermometer registered, in my vest pocket, 109°; and that same night nearly two inches of ice formed in the horse-trough." Owing to the excess of vapor thrown off from the lungs and skin, the mucous membrane of the mouth, nose, and fauces becomes dry, and may become fissured; the rapid evaporation of water leaves a large quantity of mucus behind, and this, becoming inspissated, plugs the secretory ducts and impedes their functions. Thus fol-

licular pharyngitis and tonsillitis are very frequent. Chronic rhinitis is general. The same causes commonly produce otitis and deafness. The liver acts in a sluggish way and the urine is of high specific gravity, averaging 1028.

"It is not uncommon, especially in hot weather, to find persons who urinate only once or twice a day, though it is more common to find those who suffer from a slight cystitis on account of the concentration of the urine, and who have an almost constant desire to urinate, though they pass but little in quantity. For this reason, also, the kidneys become irritated. Very obstinate constipation follows."

Dr. Darlington also calls attention to the general loss of body-weight; among fifty-eight persons of whom inquiry was made relative to the loss sustained, but one had gained. The author very properly takes ground against sending persons with wasting diseases to such a desiccating climate.

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## REVIEW OF ITALIAN, SPANISH, AND PORTUGUESE MEDICINE.

IN CHARGE OF A. M. FERNANDEZ DE YBARRA, M.D.,

Corresponding Member of the Medico-Chirurgical Academy of Madrid, Spain, the Argentine Medical Circle of Buenos Ayres, South America, and the Society for Clinical Studies, of Havana, Cuba.

Treatment of Pulmonary Tuberculosis by the Combined Action of Iodoform and Hypodermic Injections of the Serum of Dog's Blood. (*Il Faro medico*, Milan, April, 1892.)

In 1879 Professor Mariano Semmola published an article advocating the treatment of phthisis pulmonalis with iodoform. Since then he has several times employed this method with very encouraging results, and thinks those practitioners who have not obtained the same results were at fault because they did not administer the remedy in small and frequently-repeated doses according to his directions, which are: to give every hour one pill of one or two centigrammes of iodoform, until from twenty to thirty centigrammes are taken during the twenty-four hours. This method of administration avoids the risk of disturbing the digestive organs, and at the same time favors the elimination of the iodoform by the mucous membrane of the respiratory tract. The author, in this recent paper, makes known also the results he has obtained in the treatment of phthisis with hypodermic injections of the serum of dog's blood, according to the method of Richet and Héricourt, and, although it has given him no well-authenticated case of cure after employing it for four consecutive months, and in advanced cases gave no appreciable result one way or the other, at the beginning of the disease he has seen these injections produce a notable improvement, characterized by an increase of the weight of the body, a sensation of well-being, diminution of the expectoration, and a proportional diminution in



the number of bacilli in the sputum. He has also constantly observed in those patients an increase of the respiratory capacity of the chest, and a greater quantity of hæmoglobin and of urea; in one word, the results have been satisfactory.

Professor Semmola adds that the method of treatment of Richet and Héricourt is harmless when practised with all due antiseptic precautions. Its only drawback is the almost constant appearance of urticaria, more or less disseminated, but this eruption does not last longer than forty-eight hours. He does not believe that treatment serves effectually to modify in a favorable manner the seat of the lesion where the bacilli develop and multiply, but he thinks that by its means beneficial nutritive changes are secured.

**Treatment of Corneal Spots.** (*Bollettino d'oculistica*, February 15, 1892.)—Small dots of opacity of the cornea can be seen in their normal type when the evolution of the repairing process takes place in a natural manner and without the employment of any kind of treatment. When a spot of more or less thickness is formed, by the union of the cicatricial tissue of the deposits of conjunctival secretions with the hypertrophied epithelial masses, we can endeavor to restore to the cornea its transparency by the transformation of that opacity into a sore or an ulcer. The author of this excellent article, Dr. A. Simi, is of the opinion that preference should be given to caustics to attain the desired result, and of all of them he chooses iodide of potassium in a concentrated form. He considers it more suitable than citric acid, on account of its dissolving action when applied to calcareous depositions as well as to epithelial masses.

The clinical case reported by the author is entirely conclusive, because the leucoma treated by this method, which had completely abolished the visual function, was cured without leaving the least trace on the cornea. The *modus faciendi* of the treatment is the following: the applications are practised every day with a fine brush moistened with the solution, and previously passed over a crystal of citric acid. They are continued until the complete clearing out of the opacity occurs. Strict antisepsis has to be observed during the entire course of this treatment, which is a long one, the healing taking place very slowly, and sometimes it is necessary to prolong it by making new cauterizations.

**A Rare Case of Urticaria.** (*La Rassegna di scienze mediche*, April, 1892.)—After having discussed the pathogeny of urticaria, Dr. Davoli tries to show that the element of liability to inflammation is a secondary one, and that true inflammation would not take place if we could effectually modify the primitive influence of the vaso-motor nervous system by a mechanism more or less complicated. He reports the case of an hysterical woman, hereditarily neuropathic, who had several attacks of urticaria of an unusual intensity. The beginning of the eruption was always accompanied by

extreme agitation of the whole body, and even by convulsive movements, chattering of the teeth, loss of consciousness, and the sensation of impending death. There was also very marked dyspnoea, due, probably, to pulmonary oedema; temperature  $103.1^{\circ}$  F.; and albuminuria following the crisis. The author brings forward the nervous nature of this form of urticaria, which, he says, is demonstrated by the accompanying symptoms and by the kind of patient who suffered from it. More than that, he lays great stress upon the fact that the administration of valerian, which has the reputation of provoking the appearance of urticaria, produced a very marked improvement in this remarkable case, given in combination with ergotine.

**Perineorrhaphy according to Duke's Method.** (*Revista de Ciencias Médicas*, Havana, February 5, 1892; *Anales de Obstetricia, Ginecopatia y Pediatría*, Madrid, March, 1892; *Anales del Circulo Médico Argentino*, Buenos Ayres, June, 1892.)—Dr. A. M. Fernandez de Ybarra, of New York City, reports a case of perineorrhaphy without peeling off any tissue. This simple and convenient method was invented by Dr. Alexander Duke, of Dublin, and differs somewhat from Tait's flap-splitting operation. The advantages claimed for Duke's method are: 1. The simplicity of its execution, all risk of hemorrhage being avoided by immediately uniting the bleeding surfaces, thus forming a dry and clean wound. 2. There is no danger of producing sepsis, because the incisions made are at once protected from the discharges of the vagina and rectum, and remain so during all the healing process. 3. There is no loss of tissue, and, consequently, if the operation is not successful, another one can be performed afterwards without any inconvenience.

**The Peruvian Verruca.** (*El Monitor Médico*, Lima, April 1 and 15, 1892.)—This is an affection somewhat resembling the Delhi boil, Moulton sore, or Biskra bouton, accompanied by constitutional symptoms, and endemic in a region situated between  $10^{\circ}$  to  $15^{\circ}$  S. latitude and  $75^{\circ}$  to  $81^{\circ}$  W. longitude, formed by a series of valleys on the slope of the Peruvian Andes, at from one thousand to two thousand metres above sea-level. It is a very old disease, limited to that part of the country, and must have been known to the Incas, for the first Spaniards who arrived there suffered from it, an historical account having been published as early as 1543. Like the Oriental sore, this affection is due to hard well-water, and before the eruption appears it resembles very much an attack of paludal poisoning, although the initial fever is not affected by sulphate of quinine. It is an inoculable disease, and attacks also the mules, whence its Spanish name,—*verruca de las mulas*.

The author of the original paper is Dr. Beaumanoir, Surgeon-General of the French navy, and the translation into Spanish was done by Dr. A. Fernandez Caro.



**Contributions to the Study of Tricuspid Stenosis.** (*Gaceta Médica*, Mexico City, May 15, 1892.)—Dr. M. Carmona y Valle writes an interesting monograph on stenosis of the tricuspid orifice, stating that the symptomatology of this disease is founded only on theoretical conceptions. He refers to the inaugural thesis of Dr. Leudet (1888), in which there is a *résumé* of one hundred and fourteen cases of the affection, and in the great majority of them it was impossible to make the diagnosis with certainty. The author reviews the different theories on which the diagnosis is generally made, and gives the history of a clinical case.

**Strangulated Crural Hernia followed by Gangrene; Kelotomy and Enterotomy; Cure.** (*A Medicina Contemporanea*, Lisbon, May 8, 1892.)—Dr. Manuel B. Pinheiro reports the case of a woman, fifty-eight years old, who had suffered now and then for six years from a reducible hernia, which finally remained incarcerated for a week. The tumor was the size of a hen's egg, of a dark-blue color, very painful to the touch, the pain radiating over all the abdominal region; bilious vomiting; tympanites; clammy perspiration; small pulse. Herniotomy was immediately performed by making an incision in a line with the greater diameter of the tumor, cutting through, very carefully, all the tissues until the hernial sac was reached, in which a piece of gangrenous intestine was found, and resected, using the Lembert suture; the abdominal wound was closed with both deep retentive sutures and interrupted superficial ones of carbolated silk, and the wound covered with iodoformized gauze; ice was applied to the abdomen, an opiate given, and absolutely nothing to eat during three days. Twenty-one days afterwards the patient left the hospital entirely cured.

**Suppurating Tuberculous Pyelonephritis; Lumbar Nephrectomy.** (*A Medicina Contemporanea*, Lisbon, May 22, 1892.)—The same author, with praiseworthy candor, records a fatal case of suppurating pyelonephritis, in which he extirpated the left kidney through a lumbar incision. The patient was a married woman, twenty-six years old, without any hereditary taint, who nine months previously began to suffer pain in the left lumbar region, diverging towards the ureters and abdomen, and accompanied by chills and fever. Seven months later she had some difficulty in passing the urine, which, on standing, left a reddish sediment in the chamber; since that time she felt worse, and had fever every day. Dr. Pinheiro at first attributed the symptoms to some uterine disease, but, having made an examination, he found all the generative organs normal.

Supposing then that the trouble was due to some affection of the bladder, he introduced a catheter and withdrew about a hundred grammes (three and a half ounces) of a dense, ill-smelling urine, having a reddish color. Washing of the bladder with tepid borated water was then resorted to. When pressure was applied over the left kidney, which was increased in

size, great pain was felt, extending to the ureters and abdomen. An examination of the urine showed that it was alkaline, contained albumen, a large quantity of pus, epithelial cells, and blood-globules. The capacity of the bladder was small, not admitting more than about a hundred and twenty grammes (about four and a quarter ounces) of borated water when washed. The patient lived ten days after the operation. The autopsy demonstrated the existence of tuberculous infiltration over all the upper half of both lungs, dry cavernous sinuses at their apices, extensive pleuritic adhesions, heart a little pale and fatty, liver hypertrophied, fatty, and in its left lobe was found a tubercle. The microscopic examination of the extirpated kidney showed considerable suppurative changes and the presence of cheesy masses.

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### NOTICE.

#### THE AMERICAN ELECTRO-THERAPEUTIC ASSOCIATION.

A VERY full programme is announced for the coming meeting of the American Electro-Therapeutic Association, which is to be held in New York, at the Academy of Medicine, 17 West 43d Street, October 4th, 5th, and 6th.

There will be two interesting discussions: one upon "The Relative Fœticial Value of the Different Currents and their Application to Ectopic Gestation," to be discussed by many prominent gynæcologists and electricians, and another upon "Cataphoresis and its Practical Application as a Therapeutic Measure."

Papers are announced by Drs. Geo. J. Engleman, Wellington Adams, and Geo. F. Hulbert, of St. Louis; Wm. F. Hutchinson, of Providence, R.I.; Franklin H. Martin, of Chicago, Ill.; A. Laphorn Smith, of Montreal, Canada; R. J. Nunn, of Savannah, Ga.; Thomas W. Poole, of Lindsay, Ontario; C. Eugene Riggs, of St. Paul, Minn.; W. J. Herdman, of Ann Arbor, Mich.; D. S. Campbell, of Detroit, Mich.; G. Betton Massey, of Philadelphia; Henry D. Fry, of Washington, D.C.; H. E. Hayd, of Buffalo, N.Y.; J. H. Kellog, of Battle Creek, Mich.; C. G. Cannaday, of Roanoke, Va.; Ernest Wende, of Buffalo, N.Y.; Wm. J. Morton, Augustin H. Goelet, A. D. Rockwell, Landon Carter Gray, Robert Newman, Ephraim Cutter, Frederick Peterson, G. M. Hammond, F. Van Raitz, of New York; and many others. Dr. J. Mount Bleyer will give an instructive lecture, with demonstrations, entitled, "The Phonograph and Microphonograph, the Principles Underlying Them, and their Uses in the Sciences."

In connection with the meeting there will be an exhibition of Modern Medical Electrical Apparatus, all the prominent manufacturers being represented.

The social part of the programme includes many pleasant surprises.



# FORENSIC MEDICINE.

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IN CHARGE OF LORENZO D. BULETTE,  
Of the Philadelphia Bar.

## *THE PATIENT'S CONSENT ALONE NECESSARY TO THE PERFORMANCE OF A SURGICAL OPERATION.*

IF, after consultation, they deem it necessary, surgeons are justified in performing a surgical operation on a married woman with her consent, whether her husband consents or not. And in an action for damages for alleged unskilfulness and negligence in performing such operation, which is alleged to have caused her death, the wife's consent to the particular operation performed will be presumed from her voluntary submission to it, and the burden is on the plaintiff to prove the contrary. And where the disease resulting in death was caused by the operation the surgeons are not liable if they performed the operation, with the wife's consent, in a careful and skilful manner, in the belief that it was proper to be performed.

In the case<sup>1</sup> in which these points were decided, it appears from the evidence at the trial that the deceased had been afflicted by the formation of a lump in her right breast. It was supposed at first to be a benign tumor, but was afterwards found to be a cancer. The defendant, a regular physician, was consulted, and advised a surgical operation. A day was appointed for the performance of the operation, and the defendant and another physician were present and performed the operation by cutting off the entire right breast. The operation was performed about June 1, and the death occurred on December 5 following, and was not attributed with any degree of certainty to the results of the surgical operation. Some portions of the evidence tend to prove that the wound caused by the surgical instruments was entirely healed, and that death was produced by tubercular meningitis. The husband of the deceased, who was the plaintiff, relied upon the fact that, although he expressed a willingness that there should be an operation for a tumor, he did not consent to the excision of the cancer. He says that he told the physician that if the formation in the breast was a cancer he objected to its removal.

The jury returned a verdict for the defendant physician, and on appeal the Supreme Court, on the question of the husband's consent, said: "His own testimony shows that he assisted the physicians in preparing to perform the operation, and, though not in the room where it was performed, was

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<sup>1</sup> State *vs.* Housekeeper, 70 Md. 179.

near at hand. He says that he supposed the medical men were operating for a tumor, and that he would not have consented to an operation for a cancer. There is evidence from which the jury might infer that the patient knew that the formation in her breast was a cancer. When the doctors came to the house she had already prepared herself to undergo the operation. If she consented to the operation the doctors were justified in performing it, if, after consultation, they deemed it necessary for the preservation and prolongation of the patient's life. Surely the law does not authorize the husband to say to his wife, 'You shall die of the cancer; you cannot be cured, and a surgical operation, affording only temporary relief, will result in expense.' The husband had no right to withhold from his wife the medical assistance which her case might require.

"The consent of the wife, not that of the husband, was necessary. The professional men whom she called in and consulted, being possessed of skill and scientific knowledge, were the proper persons to determine what ought to be done. They could not, of course, compel her to submit to an operation, but if she voluntarily submitted to its performance her consent will be presumed, unless she was the victim of a false and fraudulent misrepresentation, which is a material fact to be established by proof. Indeed, the party who allows a surgical operation to be performed is presumed to have employed the surgeon for that particular purpose."

And continuing, the Court says:

"It was the duty of the professional men to exercise ordinary care and skill, and, this being a duty imposed by law, it will be presumed that the operation was carefully and skilfully performed, in the absence of proof to the contrary. As all persons are presumed to have duly performed any duty imposed upon them, negligence cannot be presumed, but must be affirmatively proved. This principle is especially applicable in suits against physicians and surgeons for injuries sustained by reason of alleged unskilful and careless treatment. The burden of proof is on the plaintiff to show a want of proper knowledge and skill."



## BOOK REVIEWS.

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PYE'S SURGICAL HANDICRAFT: A MANUAL OF SURGICAL MANIPULATIONS, MINOR SURGERY, AND OTHER MATTERS CONNECTED WITH THE WORK OF HOUSE-SURGEONS AND SURGICAL DRESSERS. With three hundred illustrations on wood. First American from the Third London Edition. Revised and edited by T. H. R. Crowley, F.R.C.S. Published by E. B. Treat, 5 Cooper Union, New York.

As the author states in his preface, the book is intended to describe the details of surgical work, as it appears from the point of view of house-surgeons or residents in a hospital. In this he has been very successful, and his mode of handling and treating the different headings under the subject is short, concise, and to the point. The book consists of over five hundred pages, and is divided into ten general sections, with a short appendix containing formulæ for lotions, ointments, liniments, etc. Each section treats of some special part of surgery, as Fractures, Hemorrhage, Hernia, etc., and the best accepted views of the present day are clearly told in the order of their usefulness. The section on hemorrhage is especially good, and if the remarks about the use of styptics were only followed out in practice, we would not so often see a simple incised wound turned into a sloughing sore, by the hasty and injudicious use of Monsel's solution or some equally strong styptic. The book is not intended for, and indeed does not go into, the long discussions on special points of surgery, about which the profession is divided in its opinions, but, should the reader desire this information, he is referred to a foot-note, where a number of references are given to different authorities. I think there are indeed few of us, even though we have served our one or two years in a hospital, who would not be much benefited by reading this book, and who could not pick up some points which would be very useful in our practice.

LE C.

A NEW PRONOUNCING DICTIONARY OF MEDICINE. By John M. Keating, M.D., Fellow of the College of Physicians and Surgeons of Philadelphia, editor of the "Cyclopædia of Diseases of Children," etc., and Henry Hamilton, author of "A New Translation of Virgil's *Æneid* into English Rhyme," etc. Published by W. B. Saunders, 913 Walnut Street, Philadelphia, 1892. Net price, in cloth, \$5.00; in sheep, \$6.00.

It is a matter for sincere regret that this book was not offered to the public at a much earlier date, but the sickness of Dr. Keating and the untimely death of Mr. Hamilton before the completion of the work have very much delayed its appearance. The labors of these gentlemen and their assistants are at last completed, and the result is a monument to their memory. Every line of the eight hundred and more pages (818) gives evidence of pains-taking, elaborate, studious research. The type is particularly clear and easy to read, while all the details of printing and binding have been executed with great thoroughness. The preparation of this book has required years of conscientious labor, and its appearance satisfies a long-felt want.

The first aim of the authors has been to offer the correct pronunciation of each word; and it is certainly high time that some standard of pronunciation should be

adopted in our medical schools and text-books, for the sake of harmony. The dictates of "usage" cannot be depended upon among a class of men who have neither the time nor the opportunity to determine at the start what the correct pronunciation of a word should be. The large number of new words which have been adopted by the profession within recent years forms another potent reason for the production of such a book. This volume, therefore, appears at a most appropriate time, and by reason of the care which has been exercised in its production it may well be adopted as the standard medical dictionary. By consulting its pages a thorough demonstration of the pronunciation of each word can be at once secured and understood at a glance.

Eminent professors of Latin in the leading American colleges have been consulted in the preparation of the work, and their views are tersely expressed in the introduction. Professor Francis A. Jackson, of the University of Pennsylvania, writes: "I am decidedly of the opinion that the correct pronunciation of Latin does not enter into the question of how to pronounce medical terms; they are English words, and should be pronounced according to English analogies and the best English authorities. The *c* should be soft before *e*, *i*, *æ*, *œ*; in other cases, hard." All the best authorities seem to favor "peritonī-tis" (long *i*), and "bronchī-tis," just as if the latter were spelt "bronki-tis," so that this mooted question may at last be considered as definitely settled. The definitions which accompany each word have been very carefully considered, and express tersely all that is necessary.

The appendix, edited by Dr. Fred. A. Packard, contains a vast amount of valuable information in the most readily accessible form. In addition to the usual tables of weights and measures, revised dosage of drugs, etc., the appendix contains a table of cardiac murmurs, which will be very helpful to students; a table of cranial nerves, their distribution, etc.; the chief characteristics of the principal bacteria; a list of incompatibles; poisons and their antidotes; and a brief summary of the nature, uses, dosage, etc., of the newer drugs, together with many other data of importance. This part of the work is certainly very complete, and much more extensive than other medical dictionaries.

In fact, no part of this excellent book can be examined without observing its intrinsic worth. While it will be especially valuable to students, no well-equipped medical man can afford to be without it.

J. P. T.

**BOOK ON THE PHYSICIAN HIMSELF, AND THINGS THAT CONCERN HIS REPUTATION AND SUCCESS.** By D. W. Cathell, M.D. New (Tenth) Edition (Author's last revision). Thoroughly revised, enlarged, and rewritten. In one handsome royal octavo volume. 348 pages. Bound in extra cloth. Price, post-paid, \$2.00 net. Philadelphia: The F. A. Davis Co.

The author modestly hopes that this little book may teach those who follow its suggestions how to surmount the many obstacles and decide the many perplexing questions that arise in the course of professional life. Every page contains valuable practical suggestions as to the best methods for the physician to follow in establishing his reputation and success. The results of many years of experience are offered in attractive style. The language of the book is powerful by its simplicity, and makes most interesting reading throughout. The whole subject has been treated in a masterful manner, with a true comprehension of the many-sided problems which present themselves to the young practitioner for settlement.

The proper method of conducting himself in matters of daily routine, for the furnishing of an office, for the selection of the most advantageous friendships, etc., are tersely expressed, and logical reasons given for the course recommended. The importance of locating early in the most congenial locality, and the considerations which ought to be given the most weight, are judiciously handled. Excellent advice



is offered for the adjustment of a scale of prices, notice as to payments, and the like, which physicians may with perfect propriety post in a conspicuous part of their offices.

Each subject is handled with great care and thoroughness, so that no practitioner, either successful or unsuccessful, can read its pages without finding much of interest and value. That the book has been of considerable practical value is evidenced by the fact that it has been found necessary to issue a tenth edition. There is no other work like it, and its peculiar charm lies not so much in the many practical suggestions which it offers as in the firm underlying belief in the greatness of the "good physician," and the many sterling qualities which he should exemplify.

J. P. T.

TRANSACTIONS OF THE EIGHTH ANNUAL MEETING OF THE AMERICAN CLIMATOLOGICAL ASSOCIATION, held at Washington, D.C., September 22-25, 1891. Price, in cloth, \$1.50. Philadelphia: W. B. Saunders.

This volume contains all the papers read before the association during the sessions of 1891, excepting those of Drs. F. F. Smith and J. Hilgard Tyndale, which have appeared in some of the current medical periodicals. The character of the twenty-eight papers presented compares very favorably with those of similar societies. Seven years ago the association could only offer a programme of six papers. Meanwhile the strength of the organization has steadily grown and its usefulness increased. The main object of the society is to promote the knowledge and the proper administration and use of the climatic and balneological resources with which nature has so abundantly provided this country. In choosing subjects for their papers the members were not obliged to confine themselves to climatology, but could also write on diseases of the respiratory and circulatory organs. Hence the scope of the programme presented.

Dr. John H. Musser contributes a valuable paper on "The Climatic Treatment of Whooping-cough;" Dr. W. C. Van Bibber on "The Climate of the Greater Piedmont and Mountainous Regions of the Southern United States;" Dr. J. T. Eskridge on "Nervo-Vascular Disturbances in Unacclimated Persons in Colorado;" Dr. Charles C. Ransom on "The Sulphur Waters of Richfield Springs, New York;" Dr. Walter A. Jayne on "An Experience with Diphtheria at a High Altitude;" Dr. W. W. Johnston on "The Climatic Treatment of Chronic Diarrhoea," and a number of papers on the treatment, the sputum, and the cured cases of tuberculosis of the lungs, etc.

Influenza is carefully dealt with from upward of half a dozen different points of view. Dr. Edward O. Otis extols the beneficial effect of gymnastic exercise as a prophylactic and curative remedy in chest-diseases. As the medical director of a large city gymnasium in Boston, the author can speak from experience, and his opinions should receive the attention they deserve.

The subject-matter has been carefully prepared in every particular, and makes very interesting reading. The majority of the articles will, no doubt, be constantly referred to.

ESSENTIALS OF DIAGNOSIS, ARRANGED IN THE FORM OF QUESTIONS AND ANSWERS. Prepared especially for students of medicine by Solomon Solis-Cohen, M.D., Professor of Clinical Medicine and Applied Therapeutics in the Philadelphia Polyclinic; one of the Physicians to the Philadelphia Hospital, etc.; and Augustus A. Eshner, M.D., Instructor in Clinical Medicine in Jefferson Medical College and in the Philadelphia Polyclinic, etc. Price, \$1.50 net. Philadelphia: W. B. Saunders.

This compact little volume makes the seventeenth of Saunders's question compends, so useful to students in preparing for their examinations. To condense the broad subject of general medicine into one small book, allowing only a few words for

diseased conditions about which so much might be written, retaining only what is valuable and omitting all unnecessary detail, is a matter of great difficulty. Notwithstanding this, however, the authors have produced an excellent compend on general medicine. The subjects which are explained in a few words have been carefully selected, and the required ground has been thoroughly gone over. The importance of physical signs and their exact relation to accurate diagnosis are especially emphasized.

Careful drawings of the tubercle-bacillus, the pneumococcus, the appearance of facial paralysis, of pseudo-hypertrophic paralysis, etc. (fifty-five illustrations in all), together with a frontispiece illustrating the relations of the thoracic and abdominal viscera, not only beautify the book, but also add a directness and vividness to the explanations which could not otherwise be obtained. The chapter on malarial diseases embodies the latest knowledge on this interesting subject. The drawings of the different forms of malarial organisms are reproductions of the very best in existence. Their appearance, under very high powers of the microscope, is reproduced in a manner which makes them once seen never to be forgotten. The table of endocardial murmurs is an excellent arrangement to assist the student in memorizing the differential diagnosis of cardiac valvular lesions.

In the arrangement of the various divisions of the subject, no one of the usual classifications has been followed, but order has been sacrificed to secure the benefit of the association of ideas. As it is not intended to take the place of general reading or the study of text-books, it will prove a welcome addition to the library of every studious medical man.

It is difficult to understand why the phonetic spelling of certain words used in the text has been adopted by Drs. Cohen and Eshner. Dyspnœa might be spelt "dyspnea," as they have rendered it, on account of its derivation from *δύς*, "difficult," and *πνέω*, to "breathe"; but such a method of spelling would be a very marked departure from ordinary usage, and somewhat out of place in a work which can hardly claim enough originality to warrant the profession in adopting it as a standard of comparison. There can be no authority for rendering *œsophagus* "esophagus," or *cæcum* (from Latin *cæcus*, "blind,") "cecum," etc., and excluding both these words in their usual form from the general index. An investigator might well throw the book down in disgust, not finding a reference in the index to such important parts of the body. If the authors wish to adopt the phonetic manner of spelling, there are many other words in the book which might be spelt according to their pronunciation with equal reason. This peculiar spelling which they have adopted is, therefore, not only inconsistent, but instead of helping the student would be more apt to lead him into error and confuse his orthography.

But while this criticism is only just, the book is otherwise beyond reproach, and merits the good opinion of the profession.

J. P. T.

DISEASES OF THE OVARIES AND FALLOPIAN TUBES. By J. Bland Sutton, F.R.C.S.  
Philadelphia: Lea Brothers & Co.

This is not a book to be read and then shelved: it is one to be studied. It is not based upon hypotheses, but upon facts. It makes pathology practical, and inculcates a practice based upon pathology. It is succinct, yet thorough; practical, yet scientific; conservative, yet bold.

It is probably on the table of all gynæcologists; but it is not for them alone; the general practitioner needs just such a book. It will be of immense service to him in the study of pelvic diseases, and will assuredly open his eyes to the progress made by conscientious, painstaking workers like Dr. Sutton, in the field of pathology and differential diagnosis.

J. M. K.



HOW TO EXAMINE FOR LIFE INSURANCE. By John M. Keating, M.D. Price, \$2.00 net. Philadelphia: W. B. Saunders.

It has been the aim of the author of this book to give to the medical examiner for life insurance a manual which is plain and practical, free from matters that are not of direct interest to him in the examination of an applicant for insurance, but at the same time sufficiently instructive to recall to his mind all the important points in relation to physical diagnosis that are likely to be of value to him. This aim has been conscientiously followed, and the result has been that the book has at once received the recognition which it deserves, and is now generally acknowledged to be the best book in existence on this subject. The instructions offered for the examination of an applicant for insurance are clearly expressed and full of practical points. The physical signs of disease are thoroughly reviewed, and the regional anatomy of the heart and lungs, etc., demonstrated with great precision. By consulting its pages the medical examiner may refresh his memory on anatomical and vital points with ease, and learn in a few moments whether or not he has been conscientiously discharging his duty to the company he represents.

The three plates which illustrate the regional anatomy of the kidneys, lungs, heart, etc., have been so carefully prepared by Dr. George McClellan, and so tersely explained in the text, that they might well be consulted by students of physical diagnosis in other fields than insurance work. In the second part of this excellent book the instructions of upward of thirty life insurance companies to their medical officers are given. Thus the methods of the best companies may be observed and critically compared. Many valuable tables of the proper weight, chest measurements, etc., for certain heights, and the relative expectation of life for certain ages are carefully detailed. In a word, the book contains so much valuable and necessary information that no medical examiner can afford to do without it, unless he is in possession of an authority equally as reliable.

J. P. T.

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#### *NOTE TO CONTRIBUTORS.*

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# INTERNATIONAL MEDICAL MAGAZINE.

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## ORIGINAL COMMUNICATIONS.

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### *HISTORY OF A CASE OF GUNPOWDER INJURIES TO BOTH CORNEÆ, IRIDES, AND LENSES, WITH SUBSEQUENT RESTORATION OF VISION TO ALMOST FULL ACUITY.<sup>1</sup>*

BY CHARLES A. OLIVER, M.D.,

Attending Surgeon to Wills Eye Hospital, Ophthalmic Surgeon to the Presbyterian Hospital, Philadelphia, etc.

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WHILE S. McF., aged eighteen years, a private in the Third Regiment of the National Guard of the State of Pennsylvania, was participating in a sham battle at Lansdowne, on the afternoon of the Fourth of July, 1891, he received the powder contents of a number forty-five blank cartridge, which was projected from a Winchester rifle held in the hands of a companion, at three feet distance, squarely in the face, causing, as the gravest part of the injury, several penetrating wounds of both corneæ with deposition of powder in both irides and lenses.

After having remained on the field for several hours, and the treatment, happily, having been limited to the continued applications of cold water, he was brought to Wills Eye Hospital at midnight of the same day, where the resident surgeon, Dr. M. W. Zimmerman, after placing him immediately in bed, thoroughly washing the conjunctival membrane with boric acid solution, and freely instilling strong percentages of cocaine and atropine into the conjunctival sac, picked the corneæ, the conjunctivæ, the sclerotics in a few places, and the lids as free as possible from any loose and adherent

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<sup>1</sup> Read at the meeting of the American Ophthalmological Society, July, 1892.



grains of powder; employing ice compresses for the prevention of much reaction.

Upon the following morning, sixteen hours after the accident, when the writer first saw the patient, the lids of both eyes were somewhat puffed, and marks of superficial traumatism and discoloration were plainly evident over nearly all of their exposed anterior surfaces. In the left cornea there was a rather peripheral penetrating wound in the lower nasal quadrant with a tear in the corresponding part of the iris tissue, through which a powder grain could be seen sticking into the lens. Another deep wound, extending almost through the corneal substance and holding some remnants of a powder grain, was observable in the upper outer quadrant. Although there were both tarsal and ciliary injection with marked ciliary tenderness, yet no pain was complained of. The lens was but slightly swollen and the pupil was irregularly dilated, allowing a view of the fundus, which, as far as could be explored, appeared devoid of any damage. In the right eye the condition of affairs was much worse. The iris was wounded in its lower portion directly opposite a large corneal break, and several grains of powder could be seen lying in a rather deep and dense blood-clot situated at the lower angle of the anterior chamber. The pupil was partially and irregularly dilated, and the lens, which was swollen and rapidly becoming opaque with broken and infiltrated cortex-matter protruding through the pupillary area into the anterior chamber, contained several minute though plainly visible masses of powder. Although there was no neuralgia, points of pronounced ciliary tenderness could be obtained upon the slightest palpation.

The treatment was continued.

In four days' time, during which the plan of procedure as above detailed was persisted in, the lids became less swollen, and most of the superficial powder remnants sloughed from the exposed portions of the eyeballs. Ciliary injection was lessened and ciliary tenderness in the left eye disappeared; the pupil of this eye being three-fourths and evenly dilated, its lens but slightly swollen and its intraocular tension normal. In the right eye the condition of affairs was quite different, an outburst of secondary glaucoma with all of its symptoms, especially that of increased intraocular tension, appeared the night before, the lens-substance being greatly swollen and pushed so far forward with the foreign bodies and blood remnants as to almost entirely fill the anterior chamber. This the resident surgeon endeavored to stop, relieving severe ciliary neuralgia by the substitution of eserine for the atropine, and the cessation of the ice compresses, which had become quite painful.

As the myotic had caused the intraocular tension to fall to but little above normal, and the eye had become much more quiet and comfortable, when the writer visited the hospital on the following day, and as he was compelled to immediately leave the city, after consultation with one of his colleagues, Dr. S. D. Risley, he left instructions with the resident surgeon, while continuing treatment, to carefully watch the eye during the night,

and if an exacerbation of pain ensued or intraocular tension rose again, to immediately perform a downward iridectomy so as to include the wounded portion of the iris, and to get rid of as much of the lens-matter, blood, and foreign material as possible.

On the following day, under the guidance of Dr. Risley, the resident made a free, clean-cut inferior coloboma, giving egress to much of the lens-substance, blood, several small grains of powder, and a bead of vitreous, causing tension to fall to normal and all pain to disappear. The wound healed promptly, after which, by reason of the persistence of a slight tenderness in the ciliary region at the point of operation, atropine was again resorted to. At this time light-projection appeared good in all parts of a large and uninterrupted field of vision.

The left eye steadily improved, became more and more quiet, and the lens-matter perceptibly lessened under the use of the atropine and cold compresses, the latter being discontinued in a week's time, and the former gradually decreased until, in three weeks' time, one drop of a four-grain solution was used but once a day. In this eye, with the exception of one small posterior tag of iris adhesion to the nasal side, the pupil was round, the field of light-perception was broad in every direction, and projection was good in all parts of the visible area.

The symptoms gradually improved until the 4th of September, when the patient was discharged from the hospital with a pair of eyes that had good perception of light. In the left eye there was considerable unabsorbed lens-matter, the pupil was equally dilated in all meridians except to the inside, where a small remnant of powder could be seen caught in a tag of iris-tissue and capsular material. Tension was normal, and there was not a single point of ciliary tenderness obtainable upon the most decided palpation. The right eye, which had also become comfortable, had a normal tension. In the upper part of its pupil there was a small mass of encapsulated powder, which was held in position by dense capsular bands, coming from the sides and above, the lower half of the pupil being covered by a thin though opaque sheet of capsular *débris*. Most, if not all, of the lens-matter in this eye seemed to have been absorbed. The coloboma, which was narrow, was free except at its lower portion, at which position a broad firm band of organized lymph-like matter seemed to connect the two previously cut edges of the iris.

Two weeks later the writer made a broad round hole of from four to five millimetres in diameter in the lower half of the capsule, taking care not to break the encapsulated mass just above it from its attachments, thus securing a vision of  $\frac{5}{10}$  with a correcting lens of + S. 10 D. + C. 1 D. ax. 180°. At the same sitting, without disturbing the small powder mass in the nasal portion of the iris, he did a free double discission in the left lens, obtaining a large central opening, through which the patient had a vision of nearly  $\frac{5}{10}$  with a + S. 11 D. alone, for near work, the eyes requiring an additional + S. 3 D. to obtain a reading distance of twenty centimetres for



.50 D. type. At this visit, as in all the subsequent ones, the ophthalmoscope failed to show any abnormal or inflammatory changes of the fundus.

At present, little more than one year after the accident, during which the patient has been steadily employed for eight months as an outside delivery agent in a large retail store, the eyes have remained perfectly quiet. There is a clear pupillary area in the left eye, that of the right eye still having its little mass of powder securely caught in the capsular folds.

The case is of interest not only on account of the successful outcome of a desperate state of affairs, where both superficial and deep traumatism with the entrance of foreign material into the substance of the irides and lenses caused the appearance of marked inflammatory symptoms which extended to the most dangerous portion of the ocular globe,—the ciliary region,—but is of value as an exposition of the totally diverse methods of treatment made necessary in the same subject by the profound and grave symptoms of increased intraocular pressure produced by too rapid lenticular swelling in the one organ. Further, the case is of clinical value in showing the good after effects of removing as many sources of danger—the loose powder grains—from the interior of the eyes as advisable, leaving but two small masses that are encapsulated in safe positions, and thus in great measure prevented from acting as sources of irritation.

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## THE OPERATIVE TREATMENT OF FISTULA IN ANO.

BY LEWIS H. ADLER, JR., M.D.,

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IN all cases of fistula *in ano*, before undertaking operative interference, it is essential for the surgeon to examine the patient carefully, not only locally, but also as to the general state of health; for this disease is not unfrequently complicated with other lesions, which may render operative procedures inadvisable. Thus, when a fistula is associated with a stricture of the rectum, if it be of a malignant nature, any operative interference on the former lesion will be out of the question. If it be a simple stricture and its existence is not recognized, or, if discovered, it be left untreated, any operation performed on the fistula will fail to effect a cure.

### TREATMENT BY INCISION.

In a large majority of cases of fistula *in ano* the operation which is sanctioned by experience as the most prompt and certain, at the same time that it is the safest in its result for the radical and permanent cure of this disease, is to lay open the sinus into the rectum, dividing all the tissues intervening between its cavity and that of the bowel with the knife.

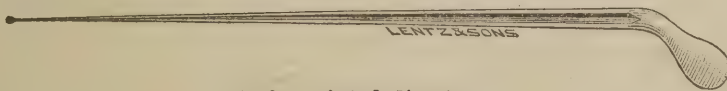
The preparation of the patient consists in having the bowels thoroughly moved by means of castor oil or some mild purge on the day preceding the operation, and on the morning of the operation the lower bowel should be evacuated by the administration of an enema.

After etherization the patient should be placed on the side on which the fistula exists, the buttock being brought to the edge of the operating-table. In some cases the lithotomy posture is better, as in cases in which there is complex fistula.

The first step in the operation is to dilate the sphincter muscles, which is to be done in a slow but steady manner, by introducing the two thumbs into the rectum, back to back, and making gradual pressure around the anal orifice, until muscular contraction is overcome.

In dealing with *complete fistulæ* a probe-pointed director (Fig. 1) is

FIG. 1.



Probe-pointed director.

passed through the sinus and is then brought out of the anus by means of the forefinger of the left hand introduced into the bowel. The parts lying

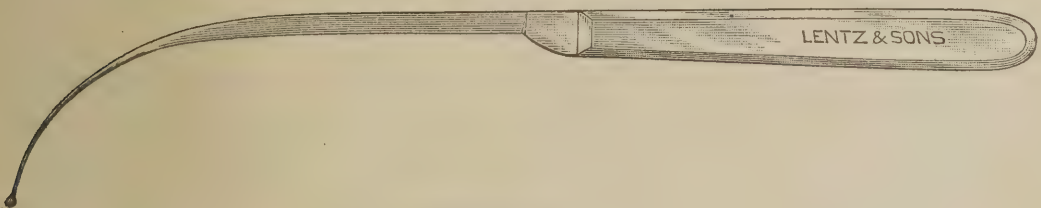
FIG. 2.



Probe-pointed knife.

upon the director are then to be divided with a sharp bistoury. Various forms are used (see Figs. 2 and 3). A careful search is now to be made for

FIG. 3.



Kelsey's knife.

any diverticula, which, if found, should be divided. If none exist, the granulations lining the track should be scraped away with a Volkmann's

FIG. 4.



Volkmann's spoon.

spoon (Fig. 4). The healing process will be facilitated by removing with scissors all overlapping edges of skin and mucous membrane.



If the internal opening is more than an inch from the anus, a probe-pointed bistoury should be introduced into the fistula upon a director, and its point made to impinge upon a finger in the rectum. As the finger and the instrument are withdrawn, the necessary incision is made. Instead of this plan being pursued, the director can be passed through the sinus and a wooden gorget (Fig. 5) inserted into the bowel, after which the track

FIG 5.

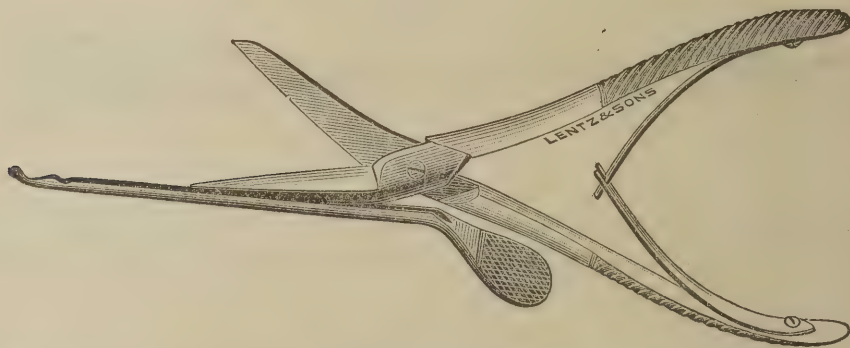


Blunt gorget.

can be divided with an ordinary bistoury. The gorget prevents the bowel from being injured should the knife slip.

When the track of the fistula is much indurated, and it therefore requires considerable force to make the incision, it will be better to perform the operation by means of Mr. Allingham's scissors and director (Fig. 6). With

FIG. 6.



Allingham's scissors and director.

this instrument fistulæ running high up in the bowel may be divided, no matter how dense they may be. The director is made with a deep groove, the transverse section of which is more than three-quarters of a circle; in this the globe-shaped probe-point of one blade of the scissors runs. When once placed in the groove the blade cannot slip out; so, having passed the director through the sinus, the forefinger of the left hand is introduced into the bowel, and then the probe-pointed blade of the scissors is inserted into the groove of the director, and is run along it, cutting its way through as it goes, the finger in the bowel preventing the healthy structures from being wounded.

A frequent error in operating on fistulous cases consists in not keeping to the sinus: the director is pushed through the track-wall, and is then free to roam about in the cellular tissue of the part, at the operator's will. In this manner a portion of the fistulous channel is left and an unnecessary

amount of the tissues (skin and subcutaneous structures) is divided. Such a mistake can always be avoided by taking plenty of time in performing the operation, and by careful sponging of the sinus as it is laid open, in order to follow the track by the granulation-tissue lining it, which by this simple means is freely exposed to view.

The method of treating *external rectal fistulæ* must vary according to the direction and extent of the track. If the mucous membrane alone intervenes between the finger introduced into the bowel and a probe passed along the sinus, the channel should be transformed into a complete fistula by perforating the mucous membrane with the probe, or a director, at the uppermost limits of the fistulous channel. The regular operation for complete fistula is then to be performed, by dividing the intervening septum between the fistula and the bowel.

In those cases in which the sinus is directed away from the rectum, the proper course to pursue is not to divide the sphincters, but freely to enlarge the external orifice and maintain free drainage.

The treatment of *incomplete internal rectal fistulæ* invariably demands operative interference at the earliest possible moment after a diagnosis is made, for if left alone its tendency is to burrow.

The operation for a blind external fistula consists in making it a complete fistula and in dividing the intervening structures between the bowel and the sinus. This is best performed by passing a probe-pointed director, bent at an acute angle, into the bowel, and endeavoring to pass the bent portion through the internal opening; when this is accomplished, the point of the probe can be felt subcutaneously and cut down upon and the remainder of the operation completed.

In dealing with *complex fistulæ* the surgeon must be guided by the peculiarities of each case. In operating upon a horseshoe fistula it is essential to recognize the true condition of affairs, for a careless or an inexperienced observer might think that he had two separate fistulæ to deal with and operate accordingly. Even were he to recognize that he was dealing with a horseshoe fistula, if he followed the usual plan, he would slit up first one sinus and then the other, thus dividing the sphincter in two places, obliquely through its fibres, thus endangering the patient's future power of controlling the movements of the bowel.

According to Messrs. Cooper and Edwards,<sup>1</sup> "If a complex fistula can be laid open in such a way as to entail only one division of the sphincter, and that at right angles to its fibres, there will be a minimum amount of risk of subsequent incontinence. The operation can be done in this way: First pass a probe-pointed director through the internal aperture, and on its point incise the skin in the middle line behind; now push the director through, and slit up. Secondly, slit up the lateral sinuses on directors passed in at the external openings, and brought out at the dorsal incision.

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<sup>1</sup> Diseases of the Rectum and Anus, second edition, p. 119, London, 1892.



These lateral sinuses may take either a straight, curved, or even rectangular direction.

“The first incision will have divided the sphincter, but the other two will only have divided tissue external to it. Should the external apertures be so placed that a straight line drawn from the one to the other would pass behind the anus, the steps of the operation could be reversed, and a director be passed in at one external orifice and out at the other, and the tissues divided. Now pass the director from the wound in the middle line into the bowel through the internal opening and slit up the tissues with the included sphincter. In this way the incisions will be found to be more or less T-shaped, the stem corresponding to the dorsal cut.”

#### TREATMENT OF HEMORRHAGE.

There is seldom much hemorrhage after an operation for fistula, but in some cases it may be found necessary to ligate a large vessel which has been divided. If there should be a profuse general oozing the sinus may be packed with iodoform gauze, or, if necessary, the rectum may be plugged. For this purpose Allingham ties a double string into the centre of a large bell-shaped sponge, which is passed into the bowel so as to prevent the blood from escaping upward into the colon. He then firmly packs the parts below with cotton dusted with powdered alum or persulphate of iron. In order to allow the escape of flatus a catheter may be passed through the sponge. As a rule, all hemorrhages following rectal operations are easily controlled by mild measures, such as the local application of hot water, of ice, or of some mild astringent.

#### THE AFTER-TREATMENT.

After the operation for fistula *in ano*, I am in the habit of packing the wound with iodoform gauze, which is left undisturbed for twenty-four hours. This is done to prevent subsequent hemorrhage. A pad of gauze and cotton and a T-bandage are next applied.

The subsequent dressing of the case should be daily attended to by the surgeon himself. The parts should be kept perfectly clean, and the wound syringed with peroxide of hydrogen (Marchand's), carbolic acid solution, etc., after which a single piece of iodoform gauze laid between the cut surfaces of the wound will be all the dressing required.

In the after-treatment of these cases I have seen the healing process greatly retarded by excessive packing of the wound with lint, or delayed by the undue use of the probe. Such interference is to be avoided.

If the granulations are sluggish and the discharge is thin and serous, it will be well to apply some stimulating lotion, such as peroxide of hydrogen, or a weak solution of copper sulphate (two grains to the ounce).

The surgeon should be on the watch during the healing process to avoid any burrowing or the formation of fresh sinuses. Should the discharge from the surface of the wound suddenly become excessive, it is evidence

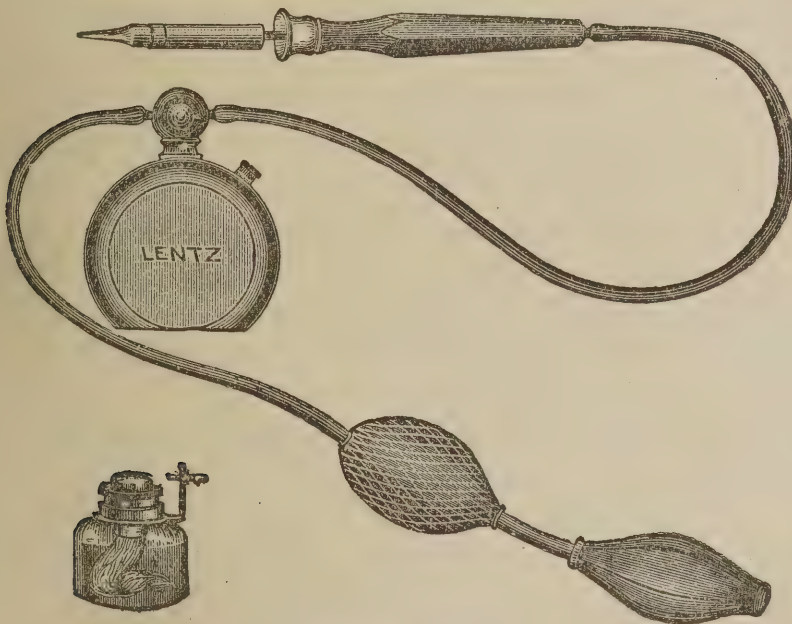
enough that a sinus has formed, and a careful search should be made for it. Sometimes it is under the edges of the wound that it commences, at other times at the upper or lower ends of the cut surface, and occasionally it seems to branch off from the base of the main fistula.

Pain in or near the seat of the healing fistula is another symptom of burrowing, and when complained of, the surgeon should carefully investigate its cause.

After an operation for fistula, the patient's bowels should be confined for three or four days, for which purpose opium is usually given. At the end of this time the bowels may be opened by the administration of a dose of castor oil, and so soon as the patient feels a desire to go to stool, I am in the habit of ordering an enema of warm water to be administered, which has a tendency to render the fæces soft and fluid, and hence to make their passage easier. The patient should be kept in a recumbent posture until the fistula is healed and until the bowels are moved; the diet should be liquid, such as milk, beef-tea, and broths. The time required for a patient to recover after an operation for fistula *in ano* varies with the extent of the disease. In an average case it will be necessary to keep the patient in bed for two weeks, and confined to the house for a couple of weeks longer.

*Incontinence of fæces* is an unpleasant sequela to the operation for fistula. It is happily of rare occurrence, and follows only extensive operations, such as those in which the sphincter has been divided more than once, etc. When it exists to any extent it is productive of great annoyance to the patient, possibly more so than the original fistula. Much can be done

FIG. 7.



Paquelin's cautery.

to relieve this distressing condition. The application of the small point of Paquelin's thermo-cautery (Fig. 7) to the cicatrix of the operation wound will often suffice to relieve this trouble, by causing contraction of the anal outlet and giving tone and increased power to the sphincter muscle.



Mr. H. W. Allingham, Jr.,<sup>1</sup> recommends for this condition freeing the ends of the muscle by a deep incision through the old cicatrix, and allowing the wound once more to heal from the bottom by granulation.

Dr. Charles B. Kelsey<sup>2</sup> advocates in these cases the complete excision of such a cicatrix, exposing freely the divided ends of the sphincter, and bringing them together by deep sutures, exactly as in cases of lacerated perineum.

In dealing with a fistula situated anteriorly in a female subject, Messrs. Cooper and Edwards<sup>3</sup> recommend that, after a free division of the sinus, it is well to scrape the track thoroughly with a Volkmann's spoon, and then to insert deep sutures, as in a case of rupture of the perineum, hoping by this means to get union by first intention.

#### TREATMENT BY IMMEDIATE SUTURE.

In otherwise healthy subjects affected with fistula *in ano*, a method of operating which has met with success, especially in this country, consists in the immediate suture of the wound after the fistula has been excised. The steps of the operation are as follows: Division of the septum between the fistula and the bowel; excision of the entire fistulous channel, together with all lateral sinuses; buried sutures of catgut or of silk are then passed around the wound, at intervals of a quarter of an inch, and are tied so as to bring the deep tissues together. The sutures are inserted very much in the same manner as in the ordinary operation for ruptured perineum. The advantage of this plan of treatment is that primary union is secured, and the patient recovers in a shorter time than would have been the case after one of the operations which aims to secure union by granulation.

#### TREATMENT BY LIGATURE.

There are two methods of using the ligature, which we may term the *immediate* and the *mediate*.

The *immediate operation* has but little to recommend it. It consists in passing a silk thread through the fistula, and drawing it backward and forward, so as to cut its way through. The same object may be accomplished by the use of the galvanic *écraseur*, or the wire *écraseur* of Chassaignac.

*Mediate Operation by Ligature.*—In this method, either the silk ligature or an elastic one may be employed.

*Silk Ligature.*—If silk is used, it may be employed in one of two ways. In either case a stout piece of silk is threaded to a curved silver probe which is passed through the fistula and drawn out at the anus. The thread is then passed through the track so that one end hangs out

<sup>1</sup> Medical Press and Circular, May 23.

<sup>2</sup> Annual of the Universal Medical Sciences, 1889, vol. iii. p. 5-D.

<sup>3</sup> Loc. cit., p. 124.

of the bowel and the other at the external orifice of the fistula. It is at this point that the methods diverge. One plan consists in knotting the ends loosely together and allowing the patient to go about. After a time, varying from two to four weeks, the ligature comes away, having slowly cut through the included tissue. According to Mr. Harrison Cripps,<sup>1</sup> the pathological process by which this is accomplished appears to be a gradual destruction or disintegration of the included tissue, due to the ulcerative action of the thread.

The other plan is to tie the silk so tightly that it will completely cut its way through and strangulate all the tissue requiring division in an ordinary case of fistula. This method causes considerable suffering to the patient, and has, therefore, been discarded in favor of the operation next to be described.

*Elastic Ligature.*—The advocates for the use of the elastic ligature claim for it that there is no hemorrhage. This is a matter of considerable importance when the fistula penetrates deeply, and also in those rare cases of so-called hemorrhagic diathesis where severe bleeding is apt to follow a trivial incision.

For the introduction of the elastic ligature we are indebted chiefly to Dittel, of Vienna. This ligature causes strangulation of the parts by the firm pressure it constantly exerts upon the included structures; it cuts its way out in a week's time or less.

It is stated by those who have had an extended experience with this plan of treatment that, contrary to what one might naturally expect, the pain attending the ulceration of the band through the tissues is slight, especially after the first twelve hours. Consequently, this method would prove a most excellent way of treating fistula if it were always to be relied upon to effect a cure. Unfortunately, this is not the case, for it often happens that after the ligature has cut its way through and the superficial parts have healed, the fistula remains uncured. The reason for this is to be found in the fact that the ligature has dealt with the main track only of a fistula, in which exist one or more secondary channels and diverticula. I am, therefore, in the habit of resorting to this method of treatment only in that class of patients who have an insuperable dread of any cutting operation, where the fistula is uncomplicated with sinuses, in cases of deep fistula, where there is danger of wounding large vessels, in those cases in which the patients are debilitated by reason of some chronic disease, and, finally, in patients of known hemorrhagic tendency. It is also a valuable adjunct to the use of the knife in dealing with cases where a sinus runs for some distance along the bowel.

The method of employing this ligature is as follows: A solid cord of india-rubber, about one-tenth of an inch in diameter, may be threaded to a probe having at one end a rounded opening or eye, through which the

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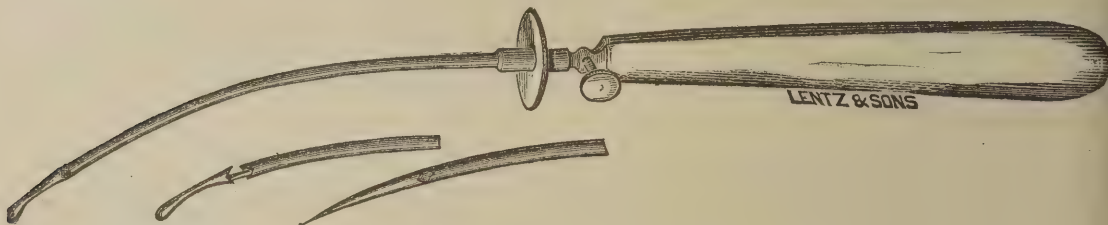
<sup>1</sup> Diseases of the Anus and Rectum, second edition, p. 181, London.



ligature is passed. The probe enters the fistula from the external to the internal opening, and passes out through the anus. To facilitate the passage of the cord, the rubber should be put on the stretch. After the ligature is passed, a soft metallic ring is slipped over the two ends of the cord; the cord is then tightly stretched, and the ring slipped up as high as possible and clamped.

If the internal opening be any distance up the bowel, Allingham's instrument (Fig. 8) facilitates the passage of the ligature. This probe-

FIG. 8.



Allingham's elastic ligature-carrier.

pointed instrument is passed along the fistula into the bowel; a loop of the elastic ligature, guided by the forefinger, is then slipped over the end of the probe and caught by an ingenious hook, the ligature being then drawn through the fistula from within outward. This instrument has been modified and improved by Helmuth, of New York.

Little after-treatment is required where the elastic ligature has been used. It will frequently be found that by the time the cord separates the wound has become superficial.

## *A MUCH-NEGLECTED ESSENTIAL FACTOR IN GYNÆCOLOGY—EXTERNAL SUPPORT.<sup>1</sup>*

BY WILLIAM B. DEWEES, A.M., M.D.,

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PROTRACTED and extended accurate observation of facts and correct generalization from them have forced me to the rational conclusion that the whole domain of medicine and surgery, unaided by external mechanical

<sup>1</sup> Read by invitation before the first International Periodical Congress of Gynæcology and Obstetrics, at Brussels, Belgium, September 14 to 19, 1892.

support, has proved inadequate to fulfil all the requisitions in gynæcology. This is evidently due to the manifest reason that the etiology and pathology of uterine displacements and other organic derangements are, at least in part (if not wholly), of a mechanical nature. It is patent that this fact has been recognized to some extent by a limited number of our authorities, who, however, content themselves by simply advising the use of an "abdominal supporter." But no explanation or fundamental reason is offered for such advice in any of our works of reference or text-books, and consequently we find that in the aggregate success has not been very materially enhanced by their use. Therefore I venture to submit a few suggestions for consideration and discussion before this honored assemblage of the foremost gynæcologists from all civilized nations, with endeavor to show clearly the reason for so partial a success, founded upon a careful study of the true principles governing these disorders.

The human body is entirely under the control of mechanical law, by virtue of the mechanical arrangement of all its parts. This primitive mechanical order is accurate and inexorable as to position and bearing of each and every organ. Any deviation from this definite and immutable law of specific position and bearing will destroy; to a corresponding degree, the primitive relations and bearings of the displaced organs and their functions, thereby constituting a practical dislocation not only of the bones but also in like manner of the viscera, since all are alike controlled by this same mechanical law. Functional disturbances of the internal organs or the bones, requiring external mechanical aid, may follow a violation of that law, on the same principle, in both classes of cases.

The philosophy of the symmetry and the erectness of the human body is of special interest in this connection. Figs. 1 and 2 are especially designed to demonstrate clearly that the erect posture consists principally in a transverse and antero-posterior balancing of the upper half of the body over and upon the body's centre of gravity, which centre is shown upon mathematical principle to be located in the lumbar spinal curve.

Fig. 1 (front in the perspective) shows conclusively that the upward force of the earth through the lower half of the body, and the downward force of the weight of the upper half of the body, must converge in the lumbar vertebræ on perpendicular line AA, which is vertical to a point mid-feet, and so balance the body transversely over the point of convergence of oblique lines DD, DD.

Fig. 2 (side in the perspective) shows with equal clearness that the superior half of the body, by virtue of its own gravity, balances antero-posteriorly over and upon the same vertebræ in the lumbar spinal curve. If it were not so, perpendicular line AA, and oblique lines DD, DD, would not all converge at one and the same point in both views.

It will be specially noticed that the lumbar spinal curve is in the mathematical centre of the body on perpendicular line AA, vertical to the ankle, and thus is the true preserver of spinal symmetry and pelvic obliquity.



When the body is erect there is no undue pressure upon any one point of the spinal column, nor is there excessive tension of any of its ligaments or muscles. The base of the spinal column, the pelvis, is balanced obliquely upon the heads of the two femurs, which mechanical arrangement gives to it free motion forward and backward. When the two halves of the body are balanced upon this centre, as they must be in the erect posture, the body is pressed into symmetry in both its transverse and antero-posterior axes by virtue of its own gravity, and this balanced state must be maintained until disturbed by muscular or other force. Hence it is impossible for the upper portion of the body to make any decided movement without the lumbar spine first shifting in the opposite direction from its central bearing; as in stooping it must first retreat back, or in leaning backward it must advance in front, of this primitive mathematical centre. In proof of this it is but necessary to press your thumb firmly against the lumbar spine at the true centre of an erect person, and it will be impossible for that person to stoop unless the heels rise and the body fall. It may be argued that this result is due to the pressure force, but change the experiment by holding your thumb about two inches back of this same axis, and the lumbar spine will retreat and touch the thumb when the person stoops.

It is equally clear that pelvic obliquity is controlled in like manner by this same influence: that when the lumbar spine advances in front of this primitive centre, obliquity of the pelvis will be increased, and that when it retreats back of this same axis, it will destroy pelvic obliquity to a corresponding degree. Hence it follows that whenever the lumbar spine retreats behind the body's centre of gravity, the upper sacrum is forced to follow, while a proportionate amount of the weight of the upper half of the body will rest thereon, causing the pelvis so to swing backward upon the femur-heads that the promontory of the sacrum will retreat and the pubes will ascend and advance, thereby destroying its obliquity by compelling it to find its balance horizontally in a corresponding degree. The philosophical conclusion of this idea is that when this lumbar spine is misplaced, as in cases of deformity, it must first be so acted upon as to cause the gravity of the body to bring it back to the true axis, for the restoration and maintenance of bodily symmetry and pelvic obliquity, both of which are acknowledged absolute essential factors in the successful treatment of uterine displacements and other organic derangements.

With special reference to the natural position and bearing of the pelvic, abdominal, and thoracic viscera, Fig. 3 is designed to represent a model body, in the erect posture, as to its outward form and internal relations, in the perspective. It demonstrates plainly that the organs of the abdomen and the chest are not in a condition depending upon their attachment, like the uterus and the bones, but that they are in a supported and elevated state depending upon the elasticity and vigor of the abdominal muscles. It also shows that, by and through the advancing curve of the

FIG. 1.



FIG. 2.

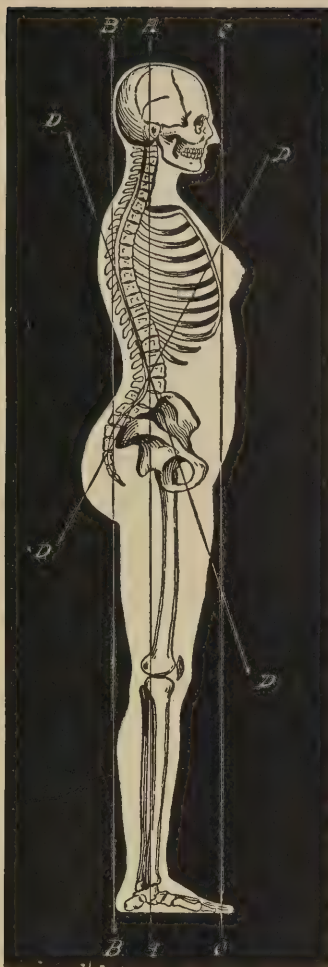
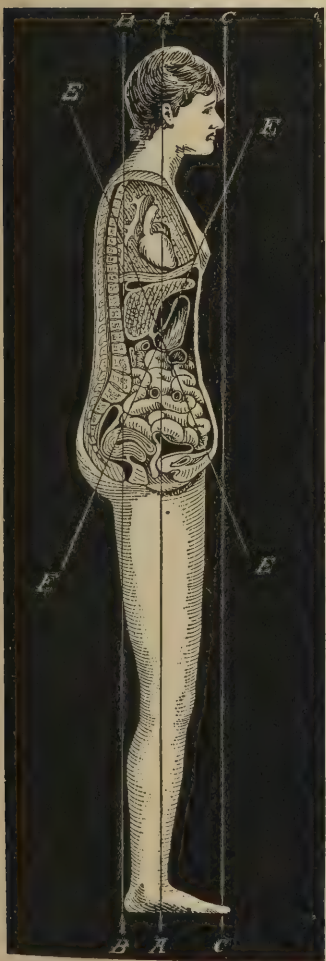


FIG. 3.



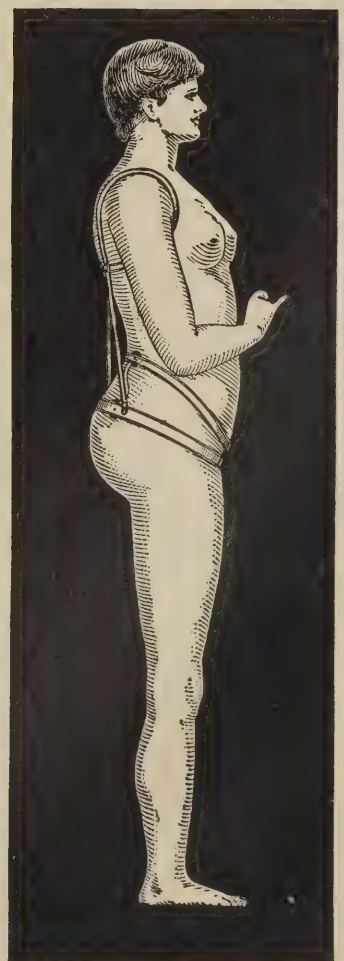
FIG. 4.



FIGS. 5 and 6.



FIG. 7.







lumbar spine in the primitive axis of the body, a consequent normal tension of the abdominal muscles is produced; that this advanced spinal curve holds the promontory of the sacrum forward, thereby maintaining pelvic obliquity as well as compelling the weight of the abdominal and thoracic viscera to fall in front, as it were, upon the pubes and lower portion of the abdominal muscles. Thus, by virtue of the normal tension of the abdominal muscles, the entire mass of the abdominal organs is compactly lifted from the pelvic organs and forced up under and against the diaphragm, which is thereby compelled to bridge-like support the organs of the chest, consequently there is largeness and rotundity of the chest and a comparatively small and trim form of the lower abdomen. This supported state of the abdominal and thoracic viscera is maintained solely by the elasticity of the abdominal muscles, as is evidenced by the fact that at each sudden descent of these organs in breathing, coughing, laughing, lifting, jumping, etc., the visceral weight, falling upon these muscles, compels them to react instantly, and spring-board-like break its force, arrest its descent, and restore the primitive elevated status of the viscera. It follows conclusively that nature's chief protector to the pelvic organs is in these two factors,—namely, the obliquity of the pelvis and the elasticity of the spinal and abdominal muscles; both of which are maintained by and through the advancing curve of the lumbar spine in the true axis of the body.

Fig. 4 is designed to represent a typical body in the perspective, as to outward form and internal relations, where the lumbar spine is extremely retreated behind the natural axis on the vertical line A A, between the ankle and the ear. As a result, the primitive distance between the sternum and the pubes has become very considerably shortened, and the abdominal muscles, of necessity, losing their tension, have become completely relaxed. Consequently, the main support of the organs of the abdomen and the chest being thus destroyed, the descent of these organs must follow. The promontory of the sacrum being forced to follow the receding of the lumbar spine, it caused the pelvis so to swing upon the femur-heads as to reverse its natural oblique state by compelling it to find its balance in a corresponding horizontal degree. Hence it follows that by and through the receding of this spinal curve there resulted a destruction of both pelvic obliquity and tension of the spinal and abdominal muscles. The natural protection to the pelvic organs being thus destroyed, the aggregate weight of the settled abdominal and thoracic organs has fallen upon the pelvic organs, displacing and compressing them as a forced consequence. This superincumbent weight thus exerted its injurious force not only in causing this abnormal condition of the pelvic organs, but also in compressing the intrapelvic nerves, blood-vessels, and lymphatics.

The philosophical conclusion from the foregoing facts, with special reference to uterine displacements, is that the prevailing pathology, which holds that the physical causes originate within the pelvis and are mainly



confined to the intrapelvic tissues, is erroneous. But, to the contrary, it is manifested that the pelvic organs and intrapelvic tissues are in the main only the objective points, and that the primary and proximate cause is a relaxation of the spinal and abdominal muscles, with a consequent unnatural gravitation. This undue gravitation is not confined to the weight of the organs of the abdomen and the chest, but commensurate therewith is also the weight of the head, shoulders, and upper portion of the body, all of which have lost their natural bearings and have fallen forward of the true axis, and all in consequence of a diminished or unbalanced action of their muscular braces. Much remains to be said by way of a technical exposition, in detail, of this principle as it effects the different organs and tissues, and especially of the effects of the abnormal gravity of this superincumbent weight upon the womb and other pelvic organs, as well as upon the intrapelvic nerves, blood-vessels, and lymphatics, but the time allotted for this paper forbids.

Having demonstrated in a general, cursory, and brief manner, by philosophical reasoning and a sweeping attending train of incontestable facts, that the true primary cause of uterine displacement is laxity of the spinal and abdominal muscles, it must be conceded that the *rationale* of cure is first to overcome the laxity of these two sets of muscles, so as to aid nature in restoring and maintaining their normal tension. To accomplish this, nature must be aided through art to bring about the normal bearings of the skeleton trunk, with the lumbar spine curved forward into the vertical axis of the body, thus compelling the pelvis so to swing upon the femur-heads as to cause the promontory of the sacrum to advance and the pubes to descend and retreat; thereby restoring normal pelvic obliquity, and causing the weight of the head and shoulders to become an elevating power, by its gravity falling behind the axis of the body, thus constituting a tensor of the spinal and abdominal muscles with a contraction of the inferior abdominal cavity. The result of this is that the uterus is again sheltered below and behind the promontory of the sacrum, while the pubes and lower portion of the abdominal muscles are compelled to support mainly the superincumbent visceral weight. This natural balanced state of the body upon its true axis, together with this elevated and supported state of the abdominal and thoracic viscera, permanently obtained, the case is changed from that of a general organic and functional derangement to a local one.

Reasoning *a priori* from these necessities in the premises, it becomes a simple, self-evident truth that to successfully aid nature to recover herself from the state of mechanical disarrangement, it is an essential requisite to employ such mechanical force at the lumbar spine, shoulders, and lower abdomen as shall and will concordantly, and at the same time, push forward the lumbar spine in the vertical axis of the body, compel the weight of the head and shoulders to fall behind this axis, and elevate the organs of the abdomen and the chest. Consequently more than a dozen years of careful

and patient practical observation and experience have fully confirmed what good common sense had clearly foretold.

Of the many and varied appliances and supporters offered by the trade, most of which, I believe, I myself have applied and tested, none has so fully supplied the desideratum in this line of cases as the appliance shown in Figs. 5, 6, and 7, made by the Natural Body Brace Company, Salina, Kansas, U.S.A. When this mechanical device is applied to a person suffering from a retreated lumbar spine, drooping posture, and a prolapsed or settled condition of the abdominal and thoracic viscera, there is accomplished a manifest immediate general change in the external appearance and internal condition. The combined forces of its bearings upon the lumbar spine, shoulders, and lower abdomen so brace up the relaxed spinal and abdominal muscles as to force the lumbar spine to curve forward in the vertical axis, the shoulders backward, and the abdominal organs upward against the diaphragm. The diaphragm, being thus coerced, again in its natural bridge-like manner becomes the support of the organs of the chest. Hence relief to the displaced and compressed womb and other pelvic organs from superincumbent visceral weight is obtained by restoring the normal balance of the body, and elevating the abdominal and thoracic viscera, this being first accomplished by mechanical force, which, under a proper regimen, by a sort of provocative action will provoke, excite, or induce the inherent and dormant muscular resources to primary energy and normal action. It is worthy of special notice that these results are thus obtained almost in a natural way, without restraining the free natural action of a single muscle or the natural motion of the body, nor compressing nerves, blood-vessels, or lymphatics. By virtue of the bands of this appliance being made of elastic webbing, it becomes a true stimulus and assistant to the weakened muscles. The front and back pads are made of perforated nickel-silver metal, which makes it cool, light, and comfortable to the wearer. Thus, taken as a whole, it is the most durable and effectual appliance, to meet the essential requisites in this class of cases, of which we have any knowledge.

In conclusion, then, inasmuch as we have seen that perpendicularity of the human body is mainly the result of an equipoising of the superior half of the body upon the lumbar spinal curve, which is in the true axis, we are prepared to comprehend fully the *rationale* of bodily symmetry and pelvic obliquity. We also understand clearly the primitive positions and bearings of the internal organs of the pelvis, the abdomen, and the chest, and the sheltered, protected, and braced arrangements of the intrapelvic organs. This natural state, being once destroyed, can seldom, if ever, be permanently restored by the influence of medicine or the intervention of surgery, alone or combined. True, medicine may remove every predisposing constitutional influence, and surgery may remove local disturbing causes, but neither can remove that general mechanical derangement or abnormal state, the reflex effect of which is negative to that of both medicine and



surgery. Nor can normal restoration be accomplished solely by such a voluntary physical discipline and culture of the body as evidently would have tended originally to preserve pelvic obliquity and bodily symmetry, inasmuch as the laws of preservation and restoration are not necessarily identical,—in fact often bearing no analogy to each other.

The truth is, the laws of function and causality are very different. To illustrate: habitual, normal or orderly, energetic muscular action tends to generate muscular power. But when muscles have lost their natural powers from excessive or protracted action, shall we advise the law of exercise or labor to the exhausted patient, and urge him to stimulate his muscles by great and undue effort?

Again, it is true that motion is the law of the joints or articulation of the skeleton body, whereby their use is preserved. But who would think of restoring a dislocation by urging the patient to make use of such a joint, by strong, habitual, or undue muscular effort? And yet, all arguments to the contrary notwithstanding, there are many authorities who seem to see clearly the necessity of elevating the settled organs from the womb, who content themselves, however, by simply advising the use of an "abdominal supporter." Now, this usually means one of two kinds, as ordinarily found in the market, namely, the "London Abdominal Supporter" and the "Steel Spring Abdominal Supporter," or some one or other modification of them. The former class consists practically of simply a broad band around the pelvis over the lower border of the abdomen. The latter class consists of an abdominal pad placed on the lower border of the abdomen and two or more pads resting on the sacrum, connected and held in place by two steel springs encircling the pelvis above the hips. The action and effect of these two classes are practically the same, and are simply compressing and depressing, instead of compacting and elevating. This action and effect of these classes of abdominal supporters are mainly due to the fact that pelvic obliquity and tension of the spinal and abdominal muscles are allowed to remain unrestored, because they fail to replace the receded lumbar spine in the true axis of the body.

Thus, then, with such an excuse for a true support, even while the uterus is pressed down upon the perineum, these same authorities introduce a pessary to correct malpositions of the uterus, which can, under such circumstances, only add to the misery, while the visceral weight from above is still allowed to rest upon this organ, to thus more compress and injure it. In addition to this, they advise their patient to adhere to a system of walking, carriage- and horseback-riding, and gymnastics, with the idea of thus inducing and cultivating the inherent and dormant muscular resources.

Such a dictum may answer as a regimen for logic, but does not meet the facts in the class of cases under consideration. Here the laxity of the spinal and abdominal muscles has resulted entirely from excessive and protracted muscular strain, and to confine such patients to the urging of

muscular effort by labor, or otherwise, would be not only simply absurd but an actual insult to the sufferers. With as much propriety might the physician say to a woman suspended by the arms, "Keep trying your muscles, and that will strengthen them to raise you up," when, in reality, the weight of her body and muscular exhaustion from previous efforts have already reduced her to helplessness.

This class of cases, under the author's observation, has borne uniform testimony to an immediate increased depressing influence by this regimen and the use of ordinary abdominal supporters. Whereas, with a normal restoration of pelvic obliquity and bodily symmetry by the application of the appliance or body-brace described, the normal relations of the internal organs are regained, with relief from the superincumbent visceral weight to the pelvic organs. This state being thus preserved, the aggregate muscular action is in the ascendant, thereby aiding nature to perform her physiological functions with a consequent permanent restoration to health, thus fulfilling the essential and fundamental requisites of the healing art, as defined by that high authority Prof. H. Nothnagel, of Vienna, Austria, in his recent famous lecture on "The Limits of the Art of Healing," before the Society of Natural Scientists and Physicians, at Halle, Germany, when he said, "What, then, is healing? To affect pathological changes in the organism—be these of a chemical or physical nature—in such a manner that they are brought to a stand-still, this changed tissue rendered histologically normal, and the altered functions rendered physiologically normal; to restore the proper relation between the tissues, to bring about a healthy condition of all the functions of the entire organic system,—this is healing."

In final confirmation of the foregoing ideas and principles, let any true physician examine such cases in the light of the facts herein stated, and he will invariably find in them the rounded shoulders, the upper chest contracted and hollow, the lumbar spine retreated where it should be advanced, and the lower abdomen flat and rigid or else heavy and tumid. With this depression of the abdominal organs will be found an unsupported state of the diaphragm, and consequently an imperfectly supported condition of the heart and lungs, as well as an undue traction upon the attachments of these organs by virtue of their own weight. The same line of reasoning holds good with the unsupported abdominal organs. Thus, it may be readily seen that, by the relaxation of the spinal and abdominal muscles and the destruction of pelvic obliquity, it necessarily must follow that great dragging and pressure are forced upon these pectoral, abdominal, and pelvic viscera and their nerves, blood-vessels, and lymphatics. Hence, it becomes comparatively easy and simple to understand and explain the constant backache and headache, the gnawing, dragging, and bearing-down pains within the abdomen and chest, the nervousness and disturbed sleep, etc., all of which testify to the fact that more power or strength has been expended than received by this deranged organism, thereby producing not only emaciation and general debility, but also



that low state of the cerebro-spinal and sympathetic nerves which is the constant forerunner of melancholia and insanity. These are the conditions which so generally defy the best hygienic, medical, and surgical treatment, and all for the rational reason that the law of the primitive balance of the body and support of the internal organs is violated.

Having partially, imperfectly, and in plain words, endeavored to present these ideas and principles, time does not warrant a further delineation of their many phases as exemplified in the morbid functional and mental state of very many cases, which we have not only traced to the described source, but confirmed the facts by readily removing, successfully and permanently, these pathological conditions with the therapeutic outcome of these principles. The truth is that these hitherto perplexing signs and symptoms give intelligent signal of the chaos and functional anarchy that are revelling within, and forcibly tell us what at least a part of their treatment should be, if we would with confidence and certainty prognosticate a permanent physical restoration in this otherwise hopeless class of cases.

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*THE EDISON PHONOGRAPH AND THE BETTINI MICRO-PHONOGRAPH; THE PRINCIPLES UNDERLYING THEM AND THE FULFILMENT OF THEIR EXPECTATIONS.<sup>1</sup>*

BY J. MOUNT BLEYER, M.D.,

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MR. CHAIRMAN AND GENTLEMEN,—In response to the invitation extended by your chairman, I have the honor to introduce to your notice a subject new to most of the profession. My object in this paper and the demonstration of the phonograph and micro-phonograph is to lead you into their mystery, and then show you how perfectly these machines can be adapted to our and other sciences. Their value must then be estimated accordingly, which I leave to your judgment.

Before demonstrating my facts and these instruments, it will be necessary for me to make a few explanatory remarks, in order that you may more fully comprehend the real mechanism of these wonderful contrivances of the age. I will follow these up by illustrating to you clinical phonograms and other records, and will then place before you several records in order to demonstrate the practicability of my investigations.

The value of these two machines already cannot be over-estimated at

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<sup>1</sup> Read and demonstrated before the Forty-third Annual Meeting of the American Medical Association, Section in Laryngology, held at Detroit, June 7 to 10, 1892, and the American Electro-Therapeutical Association, 1892.

the present time of my experimentation, and here I wish to state that some of my crude methods of taking and reproducing records or phonograms are for many reasons not as yet sufficiently developed to make them thoroughly practicable, but suffice it to say that those which will be demonstrated to you at this period of my investigation must at once lead all thoughtful students to think of the further prospects of the growth and development in the mechanism as well as in the application of the phonograph and the micro-phonograph. The results, nevertheless, are at this date gratifying, and, from my practical illustrations to you, I wish each of you to judge for himself.

At the outset I must say that, as a means of quantitative analysis in reference to sound, musical and other tones can be measured by the phonograph and the Bettini micro-phonograph as heat is measured by the thermometer and air-pressure by the barometer. The aim of all sciences is to become more and more quantitative, so that you can have a standard of measure. When the standard of measure is obtained, analysis is quantitative and scientific, and so the use of these two machines in physiological researches is a thoroughly scientific matter.

It is found that each succeeding age has either given birth to new scientific facts or elaborated pre-existing ones.

The phonograph was suggested to Mr. Edison in the spring of 1877, while making some experiments with a machine for automatically recording and reproducing Morse characters. This apparatus indented the characters on paper much the same as a Morse register. The reproduction was accomplished by this new invention, which was intended to receive telegraphic messages from one circuit and transmit them upon another without the aid of a skilled operator, and also to facilitate business in a repeating-office.

As a source of amusement, and to test the rate of speed at which a Morse operator could receive or read, the reproducing machine was caused to run at a high velocity, and when the speed was increased to such an extent that the ear could not recognize the Morse characters, Mr. Edison noticed that the machine gave off a humming or musical sound, which varied according to the characters on the record, apparently talking in a language which was not understood.

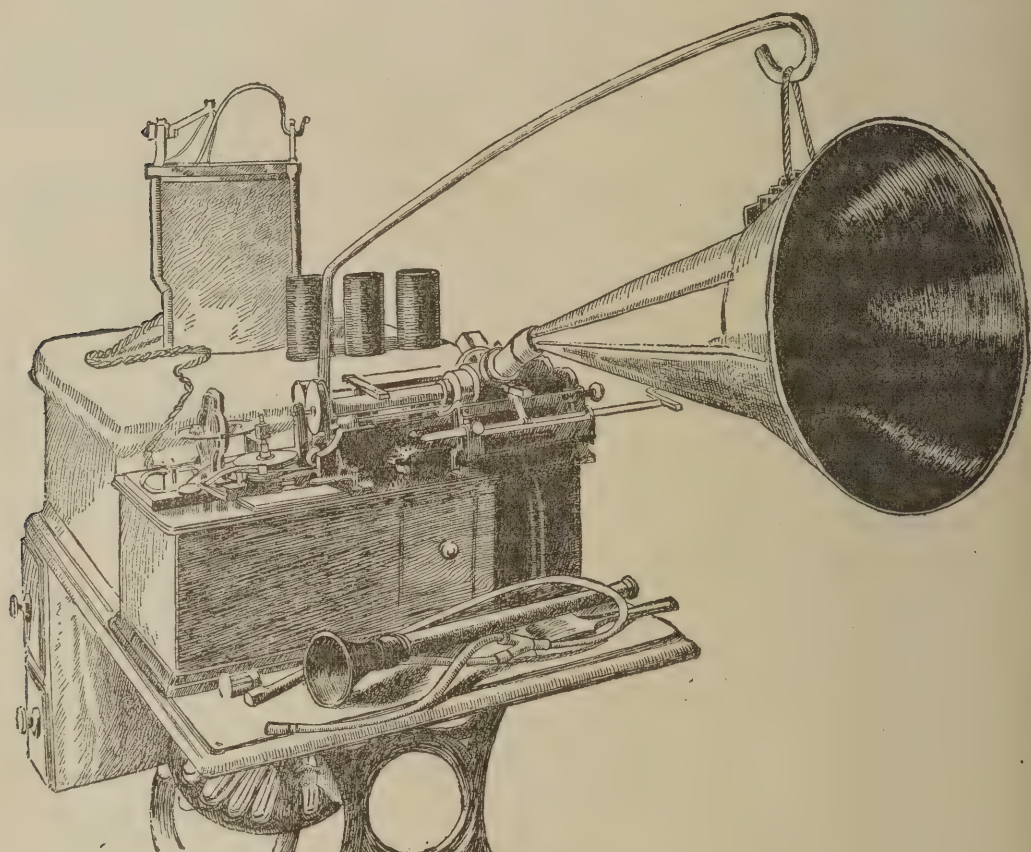
It at once occurred to him that if, instead of indentations representing Morse characters, he could obtain indentations made by vibrations representing articulate speech, the machine would reproduce the spoken words. It was but the work of an hour for such a genius to make a small alteration upon that machine. He substituted for the telegraph recording apparatus a diaphragm with an indenting-needle, and with this addition the machine was used as a test for the idea of the phonograph. This test proved the correctness of his inventive judgment.

Following closely on the heels of this experiment a phonograph was constructed on a plan more favorable for attaching a diaphragm, and tin foil for receiving the indentations was substituted for paper. It was then



exhibited, for the first time outside of Mr. Edison's laboratory, at the office of the *Scientific American*, and several different exhibits, then presented to the South Kensington Museum, of London. We have all read much about this wonderful invention, and the world at large still awaits the further growth of that infant.

FIG. 1.



The Edison phonograph.

The phonograph and the Bettini micro-phonograph which form the subject of this demonstration and paper are of the latest and most improved patterns. The micro-phonograph has not been exhibited yet except before the New York Medical Association in April, 1891, where I had the honor first to practically demonstrate this machine, and show how it might be applied as an assistant to medical and other sciences.

Here it would be well to give, by way of explanation, the principles underlying the phonograph, in order that those of our profession not thoroughly versed in the scientific points of the phonograph and the micro-phonograph may grasp those details I propose to give.

Note that when a stroke is given a bell the blow sets the particles of metal in vibration. These vibrations are communicated to the surrounding atmosphere, which, being an elastic medium, conveys the impulses to the ear, and waves of sound-pulses roll in, very much as the waves come rolling in towards the shore down by the sea. The speed at which the sound travels is 1093 feet per second at the temperature of freezing water, and as the temperature rises the speed increases about one foot to every degree.

Every human being has in his or her throat a delicate membrane which when he or she speaks is set in vibration, and in turn sends the vibratory impulses from the throat and mouth, and they impinge upon the drum of the ear. This membrane vibrates at different rates in different persons. For instance, in the soprano of the ladies its vibrations are much more rapid than in the bass voices of men. From this we find that the pitch of a woman's voice is far higher, as a rule, than that of a man's voice. The pitch of a tone depends upon the number of vibrations in a second, and upon nothing else; therefore, if a tone is produced with double the number of vibrations of another, it is said to be an octave higher. Now, when we speak into the mouth-piece of the phonograph or micro-phonograph transmitter, the sound-pulses impinge upon the glass diaphragm of the phonograph and upon the metal diaphragm of the micro-phonograph, which causes the needle attached thereto and the spider attachment of the diaphragm of the micro-phonograph to indent the composition-wax cylinder as it traces over the surface. The depth, length, and general character of these indentations depend upon the character of the sound-pulses. When the tone is loud and full they are deep, and when the pitch of the tone is high the indentations are close together. The recorders are those parts of either of the machines that hold the diaphragms, and in the phonograph the recorder is turned to the right, bringing the reproducing-needle thereon mounted into play, which, as it traverses the track made by the broader needle, slips in and out of the indentations therein, and in so doing moves the reproducing diaphragm on the phonograph with it; and thus, by mechanically imitating the motions of the diaphragm in one's own throat, reproduces all that was spoken in loud, middle, or low tones, sung in different registers, modulated tones as used by actors or elocutionists, and in many other phases of reproduction too numerous to cite here.

The micro-phonograph thus far has only been alluded to; an illustration is given below in two cuts representing one of the cardinal features of a new phonograph. This is the invention of Lieutenant G. Bettini, and is of marvellous power and perfection. It stamps its inventor as a man of surpassing mechanical genius.

As an actual acoustical achievement in the recording and reproduction of both vocal and instrumental effects, it defies description in words. It can be appreciated only by listening to its performance.

This phonograph has an entirely new peculiar form and construction of its diaphragms and the novel and philosophical method of attaching to its surface the central needle-point, which also produces its indentations in the rotating cylinder of wax, while the diaphragms vibrate over it by the action of vocal words or instrumental sounds. Let me briefly explain this new Bettini diaphragm.

Instead of attaching the needle-point directly and firmly to the centre of the diaphragm, as heretofore done, Lieutenant Bettini uses what he calls a "spider," which is a little frame having several radial legs, the feet of

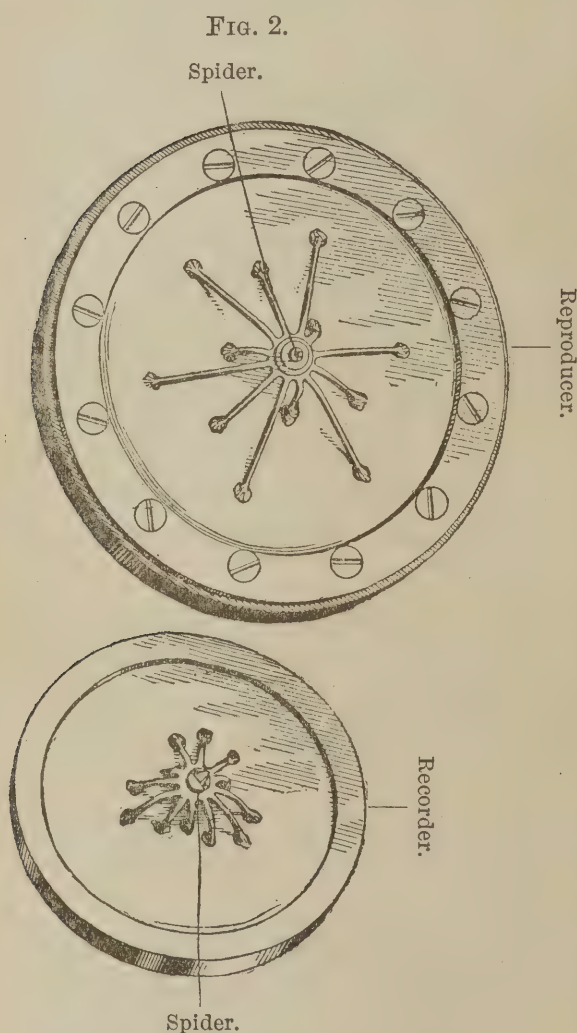


which bear against the diaphragm at a number of points surrounding the centre, and at different distances from it.

The object of this "spider," with its radial bearings, is to carry out the inventor's discovery that this tensioned diaphragm does not vibrate as a whole, as has been supposed, and as it would have to do under the action of air-waves according to the teaching of modern science, but, on the contrary, that it vibrates in numerous small divisions or sectors which may happen to be in unisonant or tensioned sympathy with the vibrating organs of the voice or of other tones directed against the diaphragm. Thus, should the centre of the diaphragm, for example, happen to be a node or a silent point not in sympathy with a certain pitch of tone, some small sector might prove to be in exact sympathy, and would thus cause the needle through one of the spider-legs to respond, and, in this way,

not only would the whole diaphragm be utilized, making the reproduced tone many times louder than by a single point of central contact, but much greater variety of *timbre* or *clang-tint* of voice would be secured, as also a record of a much greater number of voices and musical instruments than could possibly occur with a single point of contact with the diaphragm's centre. (See these spider-leg bearings in Fig. 2.)

Although the Edison phonograph, with its single bearing and needle-point, does actually record and reproduce most accurately the spoken words and the timbre of the voice, as also the sounds of a number of musical instruments played at the same time, it is a fact which you will observe at once, that its reproduction of the complexity of articulate speech, in the inspiratory and expiratory sounds, either of the normal or abnormal, in the delicate fineness of any vocal expres-



The Bettini micro-phonograph recorder and reproducer.

sion, in the volume of tone, and in the number of voices and instruments capable of being recorded at the same time is not quite as good as in the Bettini invention, which is due alone, as believed, to this method of utilizing the sympathetic sectors of the vibrating diaphragm.

Now, if the inventor could actually determine beforehand every division and subdivision of the vibrating diaphragm constituting a *sector*, which would act in sympathy with every pitch of tone employed in vocal speech and instrumental music, and could then adjust a "*spider*"-leg to each without unduly stiffening the diaphragm, the number of instruments and voices he could record and reproduce would be almost unlimited. Having no means, however, of thus determining in advance these various sympathetic sectors, he had simply to blindly attach his "*spider*" by as many points of

FIG. 3.



The Bettini micro-phonograph.

bearing as he deemed prudent, the result of which astonished himself no less than it has astonished all who thus far have heard the micro-phonograph. From the triumphs already attained by contact of the needle-supports with only a few sectors of the diaphragm, there can be no doubt that many other sectors will yet be found and connected with the needle by additional "*spider*"-legs, and thus bring the micro-phonograph to still greater perfection.<sup>1</sup>

<sup>1</sup> The Microcosm, vol. ix., February, 1892. Dr. Wilford Hall's Explanation of Scientific Forecast.



“Now, with all the wonderful genius displayed by this inventor in utilizing the different sectors of the diaphragm, it is only fair to say that he has failed to give a scientific and philosophical explanation, satisfactory to himself, as to how it is possible for this single needle-point, in retracing this single line indentation in the wax cylinder, to reproduce all these marvellous acoustical effects of twenty or more voices and instruments in their complexity of pitch, intensity, quality, expression, etc. This he frankly admits he has been unable to do.

“While the diaphragm, as we can now understand, and as M. Bettini discovered, is originally acted upon and thus acts upon the needle by all the voices and instruments being directed against its different vibrational sectors, corresponding in tension with the pitch, timbre, intensity, etc., of such individual tones, it is by no means such an easy matter to imagine or discover the true philosophical explanation as to how this same single, delicate needle-point, in being again rubbed over this line of indentations, will reproduce loudly and accurately all the tones of a score of voices and instruments. And while it is no disparagement to the great inventor that he fails to solve this mystery of mysteries in acoustical science, it is but just to history here to place on record the fact that one writer alone of all contemporaneous scientific and philosophical investigators has been able to accomplish this task. I here refer to Dr. Wilford Hall.”

Mr. Robert Rogers, in speaking of the philosophical and scientific explanation of Dr. Hall's discovery regarding the phonograph, says, “Nearly two years ago, in the May number of ‘The Microcosm’ (1890), under the head of ‘Voice-Pictures,’ Dr. Hall printed a leading editorial, by which he undertook a task he had contemplated for several years of explaining the action of the phonograph, and also at the same time to account for the ‘voice-pictures’ of Mrs. Hughes, then creating a scientific sensation throughout the civilized world. It was this very problem of the hitherto inexplicable results of the needle-point reproducing spoken words by retracing its line of indentations on the wax, which Dr. Hall had the ingenuity to attack. And, most remarkable to record, as an introduction to that unprecedented solution, he described in minute detail the very subdivisions of the phonograph-diaphragm into its small sympathetic sectors which must respond to the pitch and timbre of the various tones directed against it, precisely as Lieutenant Bettini was at that time mechanically working out!

“A more remarkable case of determining intricate mechanical and scientific results by pure philosophical ratiocination, which could only be known surely by experimental tests, does not probably exist in the records of physical research, not even excepting the discovery of Neptune by the great astronomer Le Verrier. Indeed, the location and discovery of Neptune were based upon clearly-observed movements of other planets, while there was neither movement nor indentation within sight, under the most powerful microscope, to indicate to Dr. Hall the ground on which his magnificent physical discovery was based.”

In vol. vii. of *The Microcosm*, under the title of "Voice-Pictures," is found not only the foreshadowing of the true mechanical action of the phonograph-diaphragm in the subdivision of its surface into small nodes and sympathetic sections, as practically demonstrated by Lieutenant Bettini, but there, in detail, the only possible explanation will be seen of the multi-fold and multiform work of a single needle-point,—an explanation which has defied all previous attempts, and which M. Bettini declares he had not been able to discover, even after his experimental demonstration of the same.

The peculiar forms shown in the illustrations below, called by Mrs. Margaret Watts Hughes "*voice-figures*," are also referred to by Dr. Wilford Hall. These are the ones which excited such interest when exhibited in London at the rooms of the Musical Association, the Royal Institution, the Royal Society, and elsewhere.

It was in 1885 that Mrs. Hughes, while seeking means to indicate readily the intensities of vocal sounds, first met with these figures, and, owing to their variety both in form and production, they have since absorbed much of her time. The apparatus which she employed in the production of these voice-figures is called an eidophone.

This contrivance is a simple one. It consists merely of an elastic membrane, such as thoroughly flexible soft sheet rubber, tightly stretched over the mouth of a receiver, into which receiver the voice is introduced by a wide-mouthed tube of convenient shape. In some cases the receiver may be dispensed with, and the membrane be stretched across the open end of the tube itself.

The material used for the production of the voice-figures with the aid of the eidophone was sand or lycopodium powder, or the two substances mixed. In producing these voice-figures the disk of the eidophone was covered with a thin layer of these materials. In several of her experiments fluids of different densities were made use of,—water, milk, etc. Upon singing notes of suitable pitch through the tube, not too forcibly, beautiful crispations appear upon the surface of the liquid, which vary with every change of tone. This happens when water, glycerin, milk, etc., are used. By using the denser liquids, particularly beautiful effects may be obtained. Moistened powder of different consistencies gives again other figures.

In order to give my hearers and readers of this article an idea of this notable case of foreshadowing by scientific ratiocination alone a philosophical result which could only be determined by experiment, I append here a few extracts from Dr. Hall's masterly editorial referred to:

"It has been a marvel to thoughtful acousticians how the phonograph-diaphragm, with its central needle-point, was capable, under the action of the human voice, of mechanically reproducing that voice, even to the most minute articulation and inflection of the spoken words. It is known to almost everybody that such a diaphragm, if spoken to with its central steel



(or stone) point bearing against a foil or wax cylinder revolved under it, will produce a line of hollows and ridges as the cylinder rotates, while the vocal words are being directed against the diaphragm. Then, if the needle be replaced in this groove of indentations at the start, and the cylinder rotated as before, the friction of the needle-point, rubbing against the indented wax or foil, will so cause the diaphragm to repeat its original vibrations as to reproduce the very same words that were spoken against it, even to the slightest modulation of articulate speech.

"It has been roughly assumed, by physicists, that the whole thing was explicable by the action of air-waves sent off from the vocal organs, thus causing the diaphragm to vibrate, thereby to make the vocal impressions in the wax by the point of the needle.

"We confess that this was our own superficial view from a first examination, as we originally gave it in the 'Problem of Human Life.' But we wish it now distinctly understood that we have since revised our conclusion and repudiated air-waves as having anything to do with the effects of sound known as sympathetic action upon diaphragms, tensioned strings, or anything else. Indeed, we deny that a sounding instrument sends off air-waves at all, even for a single inch, as a mechanical cause of the vibration of a sympathetic diaphragm, such as that of the phonograph, mechanical telephones, etc.

"*Sound-waves*, however, or sound-pulses are sent off or may radiate from a sounding body, and such sound-waves are pulses, not of air but of the sound-force itself, which is really as substantial and objective, though immaterial, as is electricity, which will shiver a tree to splinters; or magnetism, which will lift a piece of iron at a distance from the magnet. . . .

"In the first place, sound-force is likewise assumed only to act sympathetically on a body in unison with its vibrational number; but, while this is true, it is also a fact that a *tensioned diaphragm* is really composed of many sections or subdivisions of *tensional sympathy*, each one of which is actuated by a tone of corresponding pitch or synchronism.

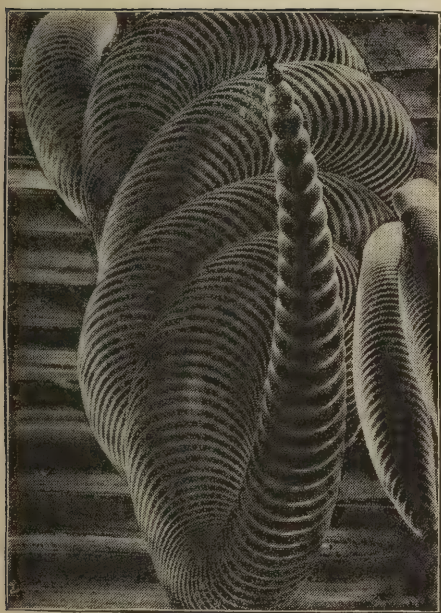
"This is proved by common experience in speaking to a diaphragm with light powder sprinkled over its surface, different varieties of pitch and peculiarities of tone distributing and arranging the powder differently according to the portions of the diaphragm most powerfully influenced by the given tone employed. And here is the sole explanation of the wonderful effects described in the beautiful achievements of Mrs. Hughes, which we have copied, by so pitching, directing, and gauging the voice as to call into sympathetic action the minute tensional and unison portions of the diaphragm in such manner as to form the pictures of leaves, flowers, etc., by her peculiar distribution of the powder.

"Now, it is manifest that no such sympathetic selection of tensional and unison portions of a diaphragm could be accomplished by mechanical waves of air, if such waves really exist, which dash bodily, like water-waves,





Seaweed or landscape form.



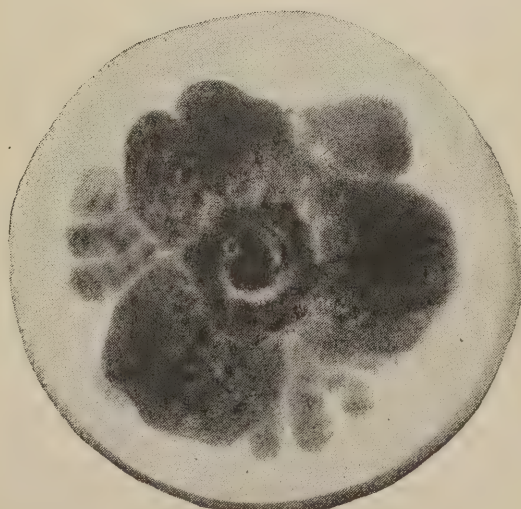
Serpent form.



Cross-vibration figure.



Tree form.



Pansy form.





against the whole surface of the diaphragm whatever pitch of tone is employed; whereas pulses of sound-force can and will normally select such sections only of the diaphragm as will sympathetically respond to their pitch, *and thus will only move the entire diaphragm and its central needle-point incidentally by the more energetic movement of the sympathetic portion directly acted on by the sound.*

"It is plain, if this analysis be correct, that such sectional vibrations of the diaphragm at all sides of the needle, according as the pitch and intensity of the tone should change, must give a slight wobbling or lateral movement to the needle-point in its line of indentations as well as the appropriate varying degree of depth and distance apart of the individual impressions.

"Such a line of indentations, composed of the requisite depths and alternate distances apart to correspond with the pitch and intensity of the producing sounds, would also have for the needle-point an almost infinitesimal lateral zigzag system of impressions, though too fine to be discovered under the microscope, by which the peculiar quality of the voice of the speaker and the articulation of words would be reproduced from the diaphragm when the needle should be caused to retrace the same line of indentations.

"By this forced lateral and zigzag tremor of the needle-point the original sectional vibrations of the diaphragm that had actuated the needle would be reproduced, thus redeveloping the same quality, pitch, and intensity of the sound-force originally liberated by a similar action of the vocal organs. . . .

"That the needle-point can and may actually produce the lateral zigzag indentations here claimed while producing the line longitudinal to the direction of the needle, and still too small to be perceived under the most powerful glass, as the real cause of the quality and articulation of speech, may rationally be inferred by the fact that a tuning-fork will liberate audible sound-force when its motions are many thousand times too small to be detected under the most powerful microscope ever constructed. This was proved by our original discovery of a method for measuring the distance of a prong's travel even after sounding four minutes. (See the elaboration of that discovery, by Captain Carter, 'Microcosm,' vol. iii. page 154.)"

During several years of practical application which I have given to the study of applying the two machines above alluded to in the several sciences, as well as making them to serve as an aid to medical science, I came to some positive conclusions which bore their own fruits, and which at the beginning of my studies were fully anticipated.

As one who applied himself entirely to that special department of medicine which involves throat-, nose-, and chest-diseases, I owe much to the aid already received from the phonograph and micro-phonograph. Naturally enough, my practice brought me in direct contact with celebrated people



and artists of high vocal culture and rank, and with their already finely-trained voices I began to make some investigations regarding the adoption of a standard of singing, speaking, etc., for myself to judge from with those whose training was not up to their standard. The excellent artists, for instance, whose records I have taken and possess, were those whose education in the art of singing accorded with various methods in vogue, such as are taught by the German, Italian, and French schools, and certainly by repeating to oneself over and over again such phonograms one must become from many such comparisons a good critic in the art. It is astonishing to hear the differences in the methods that the special training of one of these schools gives to singers, and also the ones to actors, elocutionists, etc., and more so again to compare those singers of a mixed school with those whose singing is simply naturally produced by their own efforts and training. What differences that wonderful tell-tale betrays! The music that is in the well-trained artist rings forth its melody, in its pure musical sound, out of the indented pulse-waves imprinted on the cylinders of composition-wax. Making these serve for comparative study with the lesser natural and other voices, I have gained much profit in regard to the different shades of tones and qualities possessed by their vocal organs.

It is a known fact that in instruments made in exactly the same way there is still perceptible a certain difference in the shade, the quality, or the timbre of their tones. So we find it with the human voice. A certain standard is necessary in order to judge of the proper timbre, pitch, and quality in a tenor, a baritone, and a basso voice, as well as in a soprano, a mezzo-soprano, an alto, and a contralto. By bestowing some further experimental study on this subject, I am certain that shortly I can bring forward a standard as well as an additional new art to aid the learning of singing, etc.

Some of the records which served me for my purpose were taken from celebrated tenors of the Metropolitan Opera-House, as Julius Perotti, Andreas Dippel, Carl Streitman, Mr. Koppel, etc., Theodore Reichman, Emile Steger, Conrad Behrens, Felicia Koshofska, F. C. Nicolini, Nina Bertini, Helen Mora, Bertha Ricci, and many others less educated in the several arts. Among them, for comparative study of elocution and acting, were many celebrities of our American, German, Italian, and English stages.

In the treatment of singers', actors', lawyers', and clergymen's throats, noses, voices, etc., from a medical stand-point, the phonograph and the micro-phonograph were of special use to me in phonogramming their voices when in what singers and actors call "good condition," and the phonograms were preserved for comparison in case one of the patients should be taken with any ailment of the voice, thus making the normal record a standard to go by in their treatment. I have also found the clinical phonograms valuable for further study as well as to demonstrate from. I make it a rule always to take a record of any case that comes to me for medical relief, so that I

may be able to judge as to the progress of recovery of such a voice, etc., under treatment. Here I have the extra aid to judge from both the eye and ear.

Recently I brought before the notice of the New York Medical Association, by way of illustration, the project of taking and preserving records of specimen patients, which records would demonstrate a certain characteristic cough or signs, such for instance as the whoop of whooping-cough, asthmatic breathing in all its forms, stenosis of the larynx due to whatever cause, and which is so evident in cases of croup and diphtheria, the hoarseness of laryngitis, the rough breathing, tracheitis, nasal stenosis due to any cause, cries of babies at different stages of their growth, stuttering, imperfect speech, sneezing, normal breathing as contrasted with the abnormal, etc. These cylinders or phonograms I have, and propose to utilize as demonstrative evidence and illustration in the lecture-rooms, to be added to the didactic and clinical methods of my teaching.

It is certain that students and men of our and other professions would gain more from one lecture thus aided by the phonograms than from two dozen of the ordinary and prevailing ones. Cabinets may be arranged as libraries in which all kinds of records may be preserved, either referring to or representing the different kinds of diseases of the throat, nose, chest, etc., and in their different stages. To such and other phonographic libraries many interesting features might be added.

Some experimental records were also made regarding the development of the natural or acoustic alphabet, but, as yet, I am not ready to submit a statement of any facts, on account of the many difficulties still to be overcome.

Regarding the different methods of teaching which are in vogue in elocution, reading, reciting, and acting, many very interesting and successful features were the outcome of these experiments, and will prove valuable to those interested in these branches of study.

Mr. Thomas A. Edison has interested himself in my behalf regarding these studies, and has specially built for me a phonograph which has many new attachments, besides a number of fine diaphragms on a new principle; with its recorder I shall be able to receive the fine tones and reproduce them. I am now carrying out further experimental researches, in which I have been heretofore handicapped by the want of proper mechanical appliances, but, with such an instrument and diaphragms at hand, further success must follow my researches, which are chiefly in behalf of medical science.

Another great difficulty which has been overcome by Lieutenant Bettini in his micro-phonograph and by Mr. Edison in the phonograph is the old one,—that is, the sacrifice of perfection of articulate speech to volume of sound.

These are the latest additions made to them. The Bettini and the Edison phonographs have become most valuable instruments for teaching,



on account of their accurate reproduction and loudness, without the ear-tubes being made use of, as in the old phonograph.

As suggested by the daughter of Rabbi Brown, of Cleveland, the phonograph may be used to teach the blind to read. This fact Mr. Edison intends to utilize, and he is now working out a method by which to reduce the size of the cylinders and yet increase their capacity. The recording needle is being reduced to half the size of the present one. The screw is made smaller, so as to increase the revolutions of the cylinder; the number of words recorded thereon can thus with some other alterations be increased from four thousand to five thousand, and the durability of these cylinders will be such that they will be able to repeat the records three thousand times.

Dr. H. F. Garey, of Baltimore, has used these machines in the cure of deafness. He speaks of his success as being simply phenomenal, and, considering the simplicity of the principle now that it has been discovered, he is surprised that this adaptation of the phonograph for the cure of deafness was not earlier brought to light by the great aurists whose reflected brilliancy has been shining down upon us. But it is a repetition of the same old story, proved again and again, especially in science and matters of invention and in all great discoveries.

The principle is that the sound emanating from either the phonograph or the micro-phonograph produces a massage of those parts of the ear which transmit sound to the brain, by giving continuous and successive vibrations at regular intervals. This it does with certain degrees of intensity and frequency, according to the exigencies of the case. In bad cases a series of intensified shocks at the rate of one to the second is produced against the drum. In cases of not over five years' standing the vibrations are given with more frequency and less intensity. This, I believe, is the proper method, and records can be made to suit all kinds of cases, regarding the proper intensity of the sounds to be administered, in the same way as an electric current is given to a patient. All such records may be graded accordingly.

With some of the latest improvements of the phonograph it has been brought very near the point of perfection. It is much more simple, is automatic in adjustment, efficient in action, and easy of manipulation.

An author can dictate chapter after chapter upon the cylinder of the phonograph, and the type-writer can put these into printed form with little trouble; thus one of these cylinders may be made to take scores of chapters and reproduce them for the press.

The phonograph has come much into use as an assistant in despatching correspondence, and it is not used in lieu of, but in connection with, the stenographer.

It has also come to reproduce the orations of our celebrated speakers, the recitations of skilled elocutionists, and the fine effects of dramatic art.

As mentioned in my former article in connection with this subject, as

a teacher of all languages it has no equal, since it repeats with marvellous accuracy every word spoken into it, with correct pronunciation, and records the finest variations and shades of sound with absolute precision.

It is a human photograph,—as spoken of in *The Phonogram*—"beginning to inscribe one's words from the cradle, and following one to the grave." It has also come to bring back the voices of the departed we love.

The latest use made of the phonograph is to receive messages on the telephone.

This machine has so many uses that the time is near when it will be as generally adopted as the sewing-machine. What I have here spoken of is not an illusion, nor a future possibility, but that which is done each day; and, as the advantages of modern electrical facilities are more appreciated, these machines will become more and more recognized factors in facilitating labor and aiding the sciences in many thousand ways. I must confess that they can still be much improved, but we are on the eve of the discovery of the final secret of the true scientific phonograph.

My hope is that the next communication which I make to our profession will be more full in detail and more profitable, thereby placing in their hands an appliance as an appreciable precision instrument, to be made use of in our science.

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## *PUBLIC BATHS AS A PREVENTIVE OF DISEASE.<sup>1</sup>*

BY CHARLES H. SHEPARD, M.D.,

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A NATION is powerful in proportion to the health of its people, and individuals are successful in life largely in proportion to their good health. Man begins existence with a certain stock of vitality, and his success or failure depends upon a careful use of that capital, so that good health, which should be his birthright, is of more importance than special fitness for life-work. The losses to the community from disease are beyond estimate, and yet they are so common as to blunt our realization of the conditions that surround us. What more desirable, therefore, than to seek some measure of relief? It is well to be able to cure disease, but a thousand-fold better to prevent it. Herein lies the physician's most noble field of work, that of preventive medicine.

Of all forms of prevention or cure, none appeal so directly to common sense as that of baths. None are more simple, and none more powerful when rightly directed. They are inexpensive and easily put into practice.

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<sup>1</sup> Read before the Section of State Medicine, of the American Medical Association, at the Annual Meeting in Detroit, June 7, 8, and 9, 1892.



They act upon the whole surface of the body, and, as a rule, are agreeable to all; for by quickening the action of the skin a more vigorous action of every internal organ and function is secured.

There are many kinds of baths, the swimming bath, the plunge, the shower, the douche, warm-water baths, medicated baths, mud baths, and the steam or Russian baths; lately the warm-water shower-bath has deservedly won much favor, but for completeness of adaptation to all classes and conditions of health and disease, no bath that ancient or modern science has yet devised is equal to the hot-air or, as it is more commonly called, the Turkish bath. It is a natural stimulus, and invigorates as nothing else can. It meets all the conditions, either local or general, where any bath is indicated, more fully than any other process. It has accomplished more as a remedy than any other one agency, and has never been known to injure when applied by competent hands. The action of heat, which constitutes the main feature of the Turkish bath, increases the vigor of elimination, and gives full opportunity for the destruction of poisonous ptomaines which are quickly rendered inert or thrown out entirely. The secretions are made more active, and the excretions are increased in volume and efficiency. The increased circulation promotes the discharge of old or used-up tissue and the building up of new. The blood is at once a food stream and a sewage stream, for the living body is in solution in the blood, as is also the dead body that has done its work and needs to be eliminated. When it is seen that rheumatism or any other blood-disease which is acknowledged to be of microbic origin has been quickly relieved by the action of heat as applied in the Turkish bath, what more logical than to consider that this effect is produced through the destructive action of heat upon the microbes? Furthermore, by purifying and invigorating the circulation, it is reasonable to suppose that the normal germicidal activity of the serum of the blood and other fluids of the body is increased. This throws a hopeful light upon the future treatment of disease. No matter how certainly we may recognize disease or how quickly we may relieve the pains and penalties of an outraged nature, if we do not thereby learn to avoid the cause we are pursuing only an *ignis fatuus*, and the lesson of disease is lost.

The modern science of medicine made a great step forward when it came to the knowledge of the diseases of the cells, otherwise called cellular pathology. Disease seems to be the result of blood-poisoning. Symptoms are but an effort of nature to dislodge this poison, or obtain freedom from it. It is an interesting thought of Dr. Carpenter that cancer is an excretory organ, formed to get rid of poisons in the system. The organic matter given off from the lungs alone, and which is a deadly poison, has been estimated at thirty or forty grains a day for each adult. It is recognized that a drowned man is only a poisoned man, because the waste that is continually going on in every part of the system is of such deadly character as to destroy life in a few moments. When the eliminative functions are in any way interfered with, in so far must the man be poisoned. This is due

to the formation and absorption of poisonous substances, and while the specific germ is a cause of disease, the chemical factor is even more important. In the work of elimination, the depurative process through the skin is equally if not more important than that through the bowels and kidneys. Ordinary colds are best explained by the supposition that certain effete matters, which in health are normally excreted by the skin, are retained. This theory is borne out by the effects on the nervous system, and also by the fact that the only successful methods of treatment are essentially eliminative.

More fully to elucidate this subject let us refer to the ancient history of the Turkish bath, as well as the record it has made during the past thirty years or more. As far back as five hundred years before the Christian era, Hippocrates advocated the use of baths in general, and the sudorific bath in particular, for the alleviation of disease. In warm climates the practice of plunging into cold water for purposes of enjoyment and invigoration has been wellnigh universal, but the establishment of thermæ, or hot-air baths, was looked upon in the first instance as medicinal, though subsequently they were resorted to as a luxury. Celsus prescribed these baths to his patients. Martial, in a celebrated epigram, recommended the dry heat of the laconicum and also baths in the cold water of Virgin and Martian, two streams in Southern Italy famed for their purity. Galen left on record directions for treating marasmus by the use of these baths. The early Christians, who led a severe and virtuous life, regarded public baths with horror. For many centuries baths and bathing were proscribed. Michelet speaks of the Middle Ages as "a thousand years without a bath." This long period was a time of terrible epidemics. Mysterious plagues, feeding, no doubt, upon the filth of the towns, swept away myriads of people.

Mæcenas, the friend of Augustus Cæsar and of Horace, is said to have been the first who introduced warm baths at Rome, though it is probable that warm bathing was a familiar practice throughout the East long previous to this period. The Hindoos and Mohammedans made cleanliness a part of their religion, and practised what it inculcated. India, Persia, and Egypt were early acquainted with the bath. The primary construction was crude, but it was reserved for the Greeks, the greatest architects of ancient times, to erect suitable buildings for public baths. After the conquest of Greece, about 150 B.C., the Romans soon learned to imitate the example of their predecessors, and in the Augustan age, nearly coeval with the Christian era, Agrippa, the consul, erected an enormous and splendid bath, of which one small portion, the portico, now called the Pantheon, has descended to our times in a state of excellent preservation. More than a thousand other baths were destroyed by conflagrations and by barbarians, rather than by the hand of time. The ruins of these baths are among the most wonderful monuments of antiquity; several of them are conspicuous for their extraordinary magnitude and the magnificence of their decorations. To these baths, consecrated to health and recreation, the Roman



citizens resorted as their chief enjoyment on holidays and festivals. The bath was the club-house, the café, and the restaurant, and here athletic games of all sorts were played, to give strength and vigor to the Roman people. The news of the day was sought for here, poems were recited, orators spoke from the rostrum, and minstrels sounded their harps. The price paid for the enjoyment of all this luxury was a quadrans, their smallest coin, much less than one cent, and the emperors would at times make the baths free, in order to popularize themselves with the people. In Turkey at the present day a large liberality is observed, every one paying according to his means; even the penniless cannot be legally excluded, if they be Mussulmans, as the bath is a religious institution among them, and every individual is required to attend it.

In ancient Rome, at the close of the third century after Christ, there were bathing facilities, including both public and private baths, for sixty-two thousand eight hundred citizens, at any one time. The earlier generations, those which made Rome the queen of the world, had always considered the bath the most important event and the most essential requirement in their every-day life, though in the course of time, and particularly after the conquest of the East, this was very much changed. The Romans established in the countries which they subjugated baths similar to those which they had established in their own, and they adopted a system of sanitary measures well worthy of admiration and adoption.

The occupation of Great Britain by the Romans during the first century of our era continued for more than three hundred years. Wherever their armies were located, which was in nearly every town, extensive thermæ were built, and among the many then erected there are now to be seen the ruins of more than twenty-five in different sections of England. The most notable of these are in the cities of Bath and Chester. Fine broad roads were built across the kingdom, and thus was kept a line of communication from one station to another. Many ruins indicate the existence of villas, where the generals and prefects resided. Attached to the villas were the ever-accompanying thermæ, both public and private. Wherever the Romans carried their victorious arms they established their laws, religion, and customs.

And where now is the bath? The Romans are gone! The Roman bath is apparently lost. Mr. Urquhart, the father of the modern bath, says, "A people which knows neither Greek nor Latin has preserved this great monument of antiquity on the soil of Europe, and presents to us, who teach our children only Latin and Greek, this institution in all its Roman grandeur and its Grecian taste. The ancient Roman bath lives in its modern offspring, the Turkish hammam." In our schools are taught the language, the literature, and the laws of the Romans, but one of their most important customs and sanitary measures, and one which very materially served to make them the all-powerful and great people that they were, that of the bath, has been entirely neglected. It was not till the personal experi-

ence of Mr. David Urquhart in the East led him to advocate its extension to the West that the modern movement began. In 1850 he published his book, "The Pillars of Hercules," in which he gave an account of the Turkish and Moorish baths. Six years afterwards he became acquainted with Dr. Richard Barter, proprietor of a hydropathic establishment at Blarney, in Ireland. At that place they together constructed the first Turkish bath of modern times.

Gibbon remarks, "Among the innumerable monuments of architecture constructed by the Romans, how many have escaped the notice of history, how few have escaped the ravages of time! The majestic ruins of thermæ, still scattered over all Italy and the provinces, would be sufficient to prove that those countries were once the seat of a powerful and a polite empire. Their greatness and their beauty deserve our attention; but they are rendered more interesting, inasmuch as they were erected at the public expense and intended for public utility."

The Augustan age was an epoch conspicuous for the development of sanitary measures for the promotion of public health; it was then that a public officer of high dignity was appointed over the management of the baths. In all the hot-air baths of the ancients, as well as in those discovered as having existed in the most primitive form in various parts of the world, however striking the difference may have been as regards construction, the same principle is observable throughout. All are directed to the one great end, that of *sweating*. In a remedial or therapeutical point of view, the hot-air bath claims an attention which is being slowly recognized by the medical profession and the public, and possesses medicinal and sanitary properties far beyond the ordinary bath of warm water. This is based upon its powers of altering the chemical and electrical conditions of the organic structures of the body, and abstracting its fluids. The work that it has accomplished since its introduction into this country, nearly thirty years ago, has proved beyond question that there is no more powerful agent for the prevention as well as cure of all filth diseases, fevers, diphtheria, scarlatina, and even small-pox, as well as the almost universal complaints of colds, catarrh, influenza, etc.

The remarkable success of the Turkish bath in the treatment of rheumatism and all blood-diseases pre-eminently shows the advantage it would be to the community were large public baths of this kind established throughout the country. With a reform in the dietetic habits of the people and a frequent and a habitual use of the Turkish bath, there is good reason to believe that rheumatism and many other diseases would be far less prevalent. "We ask ourselves," says Erasmus Wilson, "not what disease will be benefited by the therma? but *what disease can resist its power?*" Every hospital, asylum, poor-house, in fact all institutions, and especially those where people are massed together, should not be considered thoroughly equipped without a complete Turkish bath. Our people are now required to use disinfectants in many cases, but disinfectants come after disease has done its



deadly work. Would it not be much more desirable, as a sanitary measure, to require the use of the bath as a preventive of disease, inasmuch as bathing in its most complete form is the best kind of disinfectant? We know that many epidemic and contagious diseases would be wiped out of existence by proper sanitary measures enforced in the localities where such have existed, but the culmination of all sanitary measures for the individual would be the Turkish bath. An incident, from a report published some thirty years ago, illustrates the value of the bath in the Island of Cyprus, which contained a mixed population of Mohammedans and Christians. Among the former consumption was not known; among the latter, there was from twelve to thirteen per cent. of deaths from that disease. The great value of this bath has also been thoroughly demonstrated in the treatment of defectives and incorrigibles at the Elmira Reformatory, as appears from a report by the attending physician, Dr. H. D. Wey. We tax the industrious that we may punish those whom our neglect has made criminals and paupers; we multiply police and public house regulations, and expend large sums in hospitals; but we utterly deride the simple and comparatively inexpensive appliance of the bath. The conviction is irresistible that the reason of the universality of its use was because of its utility, that it possessed a healthful and curable potency, which commended it to the practical wisdom of mankind. American and European visitors to Japan speak with admiration of the public baths of that country, that are not only kept open in summer, but are warmed and open in the winter. In the city of Tokio there are between eight and nine hundred public bathing establishments, each frequented by at least three hundred people, who pay for the privilege an extremely small sum, so small that no one is too poor to afford it. Outside of these baths the Japanese are very much given to bathing in their own houses. They are one of the cleanliest people in the world. Travellers from the Western World frequently express their regret, in describing these Japanese baths, that the progressive peoples of Europe and America have no such establishments.

John Wesley taught that "cleanliness is indeed next to godliness." People who are habitually clean are habitually temperate; cleanliness and temperance are twin virtues, and induce self-respect, industry, and order. The cost of building and maintaining public baths, which promote cleanliness, temperance, health, and morality, would be infinitely less than that of the poor-houses, hospitals, jails, and the legal machinery required therewith. If the masses of our people were given an opportunity of making a selection between the tyranny and self-debasement engendered by the saloon, and the freedom, moral exaltation, and self-respect emanating from the bath, there is little doubt that we would soon have a new order of society.

There is no more doubt of the importance of cleanliness to the person than there is of cleanliness to the streets and houses, in conducing to the well-being, the comfort, and the health of the public at large, for if these are only attended to among the masses, there will be proportionally a less

chance of the invasion of epidemics, which first begin with the less-favored portions of the community and finally sweep all before them. It has frequently been demonstrated that the epidemics which have visited our land had, for their breeding ground, if not for their origin, the most palpable violations of sanitary laws.

If no higher motive were to influence us, that of self-defence or prudence, possibly fear, might stimulate us to provide against evils so formidable, which are apparently so effectually and easily guarded against by a frequent use of the Turkish bath. As one of the great sanitary necessities of the day, it is most desirable that large public Turkish baths, as a preventive of disease, should be established throughout the land at public expense, placed under medical supervision, with admission at nominal rates, so that the poorest individual can partake of their advantages with a feeling of self-respect in paying something for the help and comfort to be derived therefrom. They should be made more attractive than the saloon, and thus prove a more powerful antidote than any law of prohibition. This will react on the social life of the masses. By purifying the people we would quickly purify their homes. Heretofore this work has been left to private enterprise, but the time is fast approaching when it should be entertained on a larger scale than anything yet attempted. The public, who are to be the chief beneficiaries, should have the privilege of sharing the expense as well as the direction of such institutions.

The endowment of public baths was among the noblest actions of the Roman emperors. Eight hundred of those institutions adorned the capital of the empire, and they supplied, during many eventful years, almost the only medicine to a people distinguished for their corporeal and mental vigor.

If prevention be better than cure, then, to found a great public bath would confer a grander blessing than to erect a hospital. To provide an institution which should bring refreshment and vigor to the overworked, healing to the sufferer, warmth, comfort, and self-respect to the victim of squalor, poverty, and neglect, would be to raise a cenotaph more glorious

“Than ever from Attic or Etruscan hands arose.”



## THE TREATMENT OF CATARRHAL DISEASE OF THE UPPER AIR-PASSAGES.

BY NORVAL H. PIERCE, M.D.,

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I PRAY you bear with me if, in the beginning of this paper, I present a matter which at first may seem irrelevant to the subject. My excuse is threefold: first, that it is often a cause of nasal and laryngeal disease; second, that it is of frequent occurrence; third, that its importance is often overlooked. I refer to the inspiratory collapse of the *alæ nasi* in persons enjoying fair health,—I say in fair health to distinguish the same phenomenon as it occurs *in extremis*.

The literature on the subject is peculiarly scant. Traube describes a case occurring during pneumonia and one in paralysis ascendens; B. Fränkel, one in a child suffering from meningitis. In Traube's cases the hinderance to air was so great that he employed a hair-pin held in place by means of adhesive plaster to overcome it. Fränkel employed an ear-speculum. Drayton<sup>1</sup> reports a cure in the case of a pupil in vocal culture by means of a cotton pledget and massage. Zeim also reports a case. Latterly, I am not aware of any additions to the subject, with the exception of the masterly contribution by Moritz Schmidt,<sup>2</sup> to whom I owe much of my knowledge of this condition. He accounts for the scant observations on the subject by the fact that we are accustomed to at once introduce the nasal speculum in beginning our examination without at first observing the *alæ* of the nose. We have, however, only to request our patients to take a full breath before introducing the speculum to find how frequently this condition in a greater or less degree occurs; and that a convergence which furnishes an absolute hinderance to the full respiratory act is not by any means seldom, in which cases the patients express relief if the *alæ* are simply held outward with the fingers. The condition is made still worse when there exists at the same time a deviation of the septum cartilagineum.

The convergence includes the entire *alæ*, as in facial paralysis or only the *plica vestibuli*. The former occurs most frequently in those of a dolichocephalic type, the latter in the brachycephalic. The cause is to be found in an atonic condition of the nasal wall from loss of function of the *musculi dilatores et levatores alæ nasi*. This weakness is, in turn,

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<sup>1</sup> Medical Recorder, December 15, 1888.

<sup>2</sup> Ueber das Aussehen der Nasenfügel, Deutsche Medicinische Wochenschrift, No. 4, 1892.

caused by all those long-continued conditions which interfere with nasal respiration, whereby the muscles have not sufficient exercise. Adenoid vegetations are a prominent cause of this.

Now, as to the philosophy of this in connection with nasal or laryngeal diseases, we must first understand that the beginning of the respiratory tract is at the entrance of the nose, and not at the larynx, and that behind every constricted point in the entire tract from the entrance of the nose to the finest alveoli there is a rarefaction of air during every inspiration. The degree of rarefaction varies in ratio to the degree of constriction and force of inspiration. The natural effect of this is a suction which is exerted upon the blood within the domain of this rarefaction, which is made manifest to us as a local hyperæmia of the mucous membrane and, consequently, excessive secretion.

Respiratory convergence of the wings of the nose may give rise to nearly all the phenomena arising from contraction of any other part of the respiratory tract, migraine, aprosexia, asthma, etc. Usually the influence is exerted on the mucous membrane of the nose, cavum, or pharynx, manifested by redness, swelling, and increased secretion of mucus. Tinnitus aurium is not infrequently caused by congestion of the mucous membrane lining the cavum, which, if dependent upon convergence of the alæ of the nose, may be relieved at once by treating the latter condition. It is true that the conditions enumerated—the congestion, swelling, etc.—may have existed for so long a time that they may require additional treatment, but I have greatly relieved troublesome swelling with accompanying secretion from the mucous membrane lining the turbinate bodies by means of the simple but eminently effective instrument which I will presently present to you.

FIG. 1.



The treatment is evident. Schmidt has tried gymnastics of the nasal muscles, but has given them up as unsatisfactory. He has used the Feldbausch's tubes for a long time with satisfactory results, but they cause a certain amount of irritation from pressure on the septum. Feldbausch, on the suggestion of Schmidt, has produced the instrument which I hold in my hand (Fig. 1) and which is quite satisfactory. It is, of course, made in different sizes to fit different noses. It is held in place by introducing the heads from behind into the pockets at the end of the nose, when the spring is pressed up against the alæ of the nose, the connecting part resting on the septum cutaneum.

#### ACUTE RHINITIS.

During the trying weather of the past winter we have had ample opportunity of treating coryza. The symptoms have not varied from the well-known ones, of slight pyrexia, lassitude, chilliness, frontal headache, blocking up of the nose, with swelling of the mucous membrane, hypersecretion, etc. The treatment which we have employed has proved most satisfactory. Internally we have given large doses of bromides, or a tablet



compounded after the formula of Dr. Lincoln, consisting of camphor, gr.  $\frac{1}{4}$ ; belladonna fluid, gr.  $\frac{1}{8}$ ; quininæ sulphas, gr.  $\frac{1}{4}$ . One every hour. The local application by means of the cotton-carrier of cocaine dissolved in the tincture of belladonna in from three- to five-per-cent. solution has been especially useful in immediately relieving the most prominent symptoms,—*i.e.*, turgescence of the mucous membrane, frontal headache, and throbbing in the nose. We believe that such treatment shortens the duration of all cases of coryza, and in some cases seems really to abort the attack. If there is a predisposition against cocaine we may use tincture of belladonna, three parts, as a spray with good effect, or tincture of belladonna alone applied on the cotton-carrier.

We have not lost sight of the fact that chronic rhinitis in the beginning results from relapsing acute attacks, and have therefore retained the patients under observation until the mucous membrane of the turbinated bodies has returned to a normal condition. To this end, we have used nearly the same treatment as that employed in simple chronic rhinitis. In this the most prominent position is given to the nasal bath. The ingredients employed in the solution and the mode of employment are simple and effective. A half-teaspoonful of salt and a half-teaspoonful of glycerin are dissolved in half a glass of warm water. Take a teaspoonful of this mixture, rest the point of the spoon on the lower part of the nostril, slowly throw the head backward, saying at the same time a continuous “ah,” and allowing the fluid to run gently into the nose. Then incline the head forward and the fluid will run out. Repeat this in each nostril three or more times night and morning.

The sodium chloride has a soothing effect upon the mucous membrane. The glycerin has a mildly depleting action. The water is cleansing. I have lately had constructed a glass receptacle in the shape of a covered spoon having a spout which facilitates the taking of the bath. Douches are never allowed in any form of simple chronic rhinitis, not because we believe they are potent in causing disease of the middle ear, but because of their local effect on the turbinated bodies. We are convinced that they increase rather than diminish the hyperæmia present in simple chronic catarrh, and that they aid the hypertrophic process, towards which simple chronic rhinitis has always a strong tendency. Very frequently the nasal bath is all the treatment required. In other cases, it may be necessary to use soziodide of zinc in sugar of milk in the proportion of one to ten,—this especially in catarrh of the cavum, where decomposition of secretion is very liable to occur. Or we may use menthol dissolved in albolene in from two- to ten-per-cent. solution where turgescence and nervous phenomena predominate, or peroxide of hydrogen when the purulent feature is most prominent, as is especially the case in rhinitis of children. Thymol has also been found to be a most useful agent in certain cases where the discharges are liable to become inspissated. We have almost done away with aqueous sprays in the treatment of nasal diseases, because of the mechanical

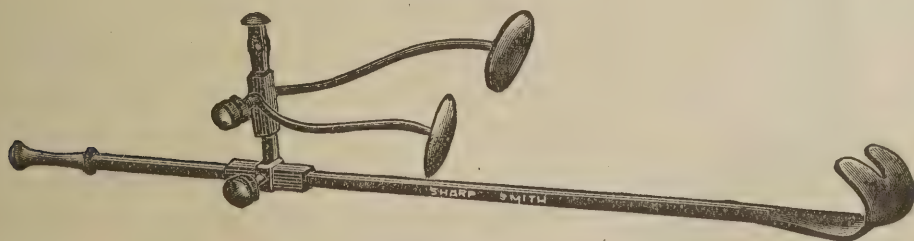
irritation caused by the extreme force with which they strike the parts to be treated, using instead one or the other of the petroleum excipients.

There has lately been brought before the profession, by the chemists McKesson and Robbins, a preparation of stearic acid and zinc, which, to my thinking, bids fair to become a valuable addition to our armamentarium. In the manufacture of this new excipient stearic acid, prepared from suet, is used. When a soluble salt of zinc is added to this acid a light mollescent precipitate results, resembling, in its extreme lightness, calcined magnesia. Various medicinal agents are combined with this powder, such as tannic, boric, or salicylic acid, balsam of Peru, aristol, ichthyol, menthol, and many others. One of the chief advantages of this preparation is its power of adhering to the surfaces upon which it is placed. Rubbed on the palm of the hand it is absolutely unaffected by the addition of water, the latter acting as quicksilver does, and when poured off not the slightest moisture remains. It is said to remain in place on the urethral mucous membrane for from six to twenty-four hours, regardless of the passing secretions. Another important feature is its freedom from the formation of the little balls which have rendered the use of insufflations in the past more harmful than beneficial. Further experience with these preparations must be had before a conclusive opinion may be stated, but at present we are most favorably impressed.

In the pharyngitis accompanying chronic rhinitis, where the mucous membrane is covered with a thin, glairy, tenacious layer of partially inspissated mucus, we first cleanse the membrane by wiping with a cotton pledget until the secretion is entirely removed, then a five- to ten-per-cent. solution of nitrate of silver is applied by means of a spray.

The condition which was first designated by Schmidt, of Frankfort-on-the-Main, as "bilateral pharyngitis," and which is so frequent in singers, is, in our experience, best treated by cauterizing the red granular streaks which stretch up along the lateral pharyngeal walls with mitigated lapis over their entire extent, even up into the Rosemeller's groove, if need be. The results of this procedure, especially in vocalists, are often remarkable. The voice

FIG. 2.

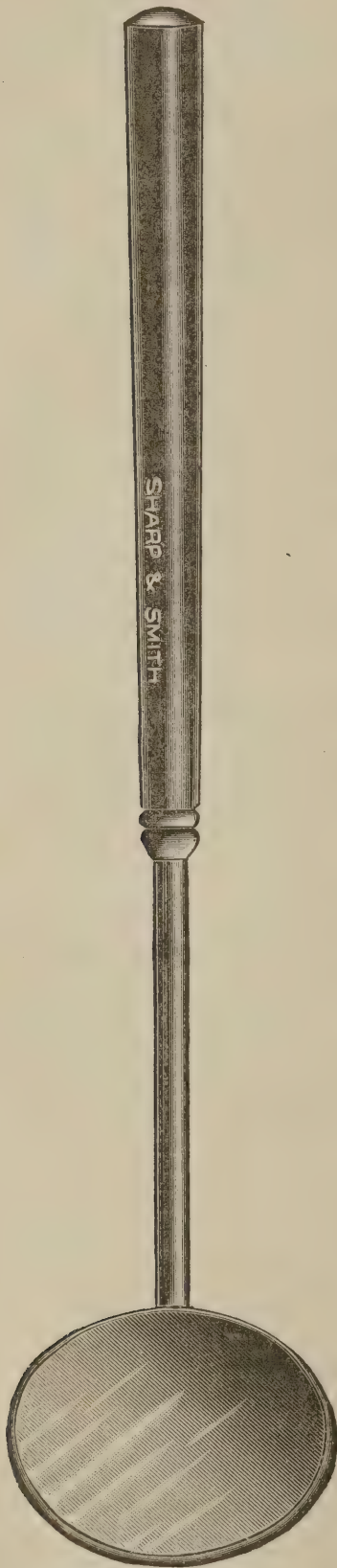


is improved and the disagreeable tickling sensation immediately removed. In catarrh of the crypts of Luschka's tonsils the following operation is performed. After thorough cocainization of the palate, pillars, and walls of the pharynx and post-nasal space, the palate is hooked back by means of a palatal retractor. I am accustomed to the one figured above (Fig. 2),



which is quite practical. After this the tongue is depressed by a large, short-handled mirror (Fig. 3). Thus the crypts can be seen in the mirror at the same time that the tongue is being depressed.

FIG. 3.



A probe bent at a proper curvature, and having mitigated lapis fused on its head, is then carried up into the depression of the tonsils, which are thoroughly cauterized. In this way much of the dropping of mucus, so frequently complained of, and which may evade all other modes of treatment, may be immediately arrested.

In hypertrophic rhinitis there is no time lost in any method of treatment other than the cold or electric snare, or the electric cautery. The results of this treatment are so much more satisfactory and permanent than those obtained by the use of chromic acid, acetic acid, etc., that the two methods in our opinion are not to be compared. In circumscribed anterior hypertrophies the cold or electric snare is used. In the electric snare ordinary piano wire No. 6 is used instead of platinum. The piano wire has greater mechanical and less electrical resistance, and the former point is one of great practical value in snaring post-nasal hypertrophies. When a turbinated body is hypertrophic along its entire length we draw three lines of cauterization from behind forward with the knife-shaped point, one above, one below, and one in the middle. I find that the results are much enhanced if the furrows thus burned are then carefully rubbed over with a crystal of trichloroacetic acid. The reaction after such an application, instead of being more severe, is less, and the relief of obstruction thus obtained, instead of lasting for only a year or a year and a half, as is often the case when the cautery alone is used, is nearly always permanent.

#### ATROPHIC RHINITIS.

It has been my fate, it seems to me, to have had more than my share of this disease. It commenced while at work in Chiari's clinic, in Vienna, when he portioned out to me six cases to be treated by Braun's vibratory massage, which occurrence gave occasion to some of the jocular gentlemen in the same clinic to apply to me an appellation which was not

so nice as it was humorous. Instead of trying to dodge such a fate I have yielded to it, and given the subject a good deal of careful attention. I will be as terse as possible in my description of the treatment which I have found most beneficial. It is an open question in my mind as to whether or not the fear of the douche causing ear-trouble is well founded. I am aware that we have strong authority for such fears, and such men as Roosa, Mackenzie, etc., are not to be ignored. Still—and it may be that my experience has been peculiarly happy—there have come to me no untoward effects from that therapeutic agent, with the one exception of a man who in my presence deliberately turned his head to one side while taking a douche. At least I have my patients who are suffering with fetid rhinitis take a douche once or twice a day, but in this disease alone is it allowed, and then only in the more severe forms of it. I have the directions plainly printed on a slip which the patient takes away with him.

First, let me digress long enough to say that after thoroughly testing Braun's vibratory massage in the Vienna clinics I gave the results in a paper which I read last year before this section. One of my conclusions in that paper was that "to the cleanliness which is so essentially a part of this mode of treatment is due most of the speedy reliefs of disagreeable symptoms, fetid secretions, etc." Braun claimed that under his method the atrophic turbinated bodies returned to their natural proportions. My experience has not substantiated this latter statement. During the past year I have modified Braun's methods in the following manner: The patient comes to me daily. A piece of absorbent cotton loosely pulled from the roll is torn to a size which will completely, but loosely, fit the inferior meatus and space included between the middle of the inferior turbinated body and septum. This *dry* cotton is held in the accompanying instrument (Fig. 4) and the vibratory movements are carried over the mucous

FIG. 4.



membrane of the inferior, middle, and superior turbinated bodies, pharynx meatus (as far as possible), septum, and floor of the nose. From three to six pledgets of cotton may be necessary in each nostril to entirely bring away the discharge, scabs, etc. This absolute cleanliness cannot be too strongly insisted on. On examination after this massage the mucous membrane looks pink and clean, and the patient often experiences a feeling of comfortable warmth and relief in the nose. Immediately afterwards we may use balsam of Peru, ten per cent. iodo-glycerin, thymol in albolene, or any of the many good things recommended for the disease, provided they are not too irritating. But I am convinced that the vibratory massage, carried forth as above described, has a distinct worth, and will shorten the treatment of fetid rhinitis by many months.



I had intended to speak further on the treatment of simple laryngeal inflammations, especially as they occur in singers, but I fear that I have had more than my share of time. I have intentionally refrained from speaking of deflected septum in connection with rhinitis, as it would lead me into too vast a field.

In conclusion, I would say that there are few cases that do not require constitutional treatment. Rheumatism or the rheumatic diathesis, plethora, scrofulosis, and alcoholism should be carefully watched for and treated according to the well-known lines. We cannot cry out too loudly against smoking and drinking as causes in many individuals of disease of the upper air-tracts. Especially harmful are cigarettes, because the smoke from them is inhaled, and causes atrophy of the vocal cords. A recent case of this kind vividly brought this effect of cigarette-smoke to my notice. An actor, after two years of excessive cigarette-smoking, applied to me for an increasing loss of vocal resonance and timbre with recurring attacks of hoarseness. I found the vocal cords atrophied to two-thirds their former size. I had examined them when they were normal.

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## REFLEX ECZEMA IN BABIES AND YOUNG CHILDREN.<sup>1</sup>

BY GEORGE T. ELLIOT, M.D.,

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NOTWITHSTANDING that dermatological literature is already burdened with formulæ and advice without end concerning the treatment of eczema, still the subject is always of interest, for the reason that it occurs to every one repeatedly to meet with cases of the disease which prove rebellious and intractable and refuse to yield to any of the means employed for their relief. While apologizing, therefore, for calling attention to a trite subject, I would do so in order to speak of a particular type of the disease, one seen frequently, and one which, depending directly upon methods of causation operating in a reflex manner, requires a treatment indicated by them, and not simply by the fact that in accordance with the anatomical lesions the process is an eczema. The type in question unquestionably constitutes a part of the family of eczema, but it forms a group characterized by certain peculiarities of origin, localization, course, and mode of behavior, which allow of its being readily differentiated from those other forms of the disease which are the result of various other and different causes. Occurring in infants and children, all of these forms, whatever their cause

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<sup>1</sup> Read before the Dermatological Section of the American Medical Association, June, 1892.

may be, have usually been included under the name of "infantile eczema," a designation which cannot be too strongly deprecated, as it is one based upon the age of the patient and not any more applicable than "adult" or "senile" eczema would be. Besides, it gives no clue at all to the etiological origin of the disease, but is made to cover without distinction parasitic, seborrhœic, irritative, or reflex eczemas, or those due to one or another cause, all of which offer distinctive clinical points of difference, as well as suggestions for treatment oftentimes directly opposed to each other. In consequence, I would specify the type to which I refer here as reflex neurotic eczema occurring in babies and young infants, and my reasons for doing so will appear later.

This type is met with most frequently in babies, beginning often in the first month of life, at times in the first week, and occasionally not until the first or second year, and, having once become instituted, it persists until the exciting cause has either been removed by proper treatment or has ceased to be operative, or the child has reached an age at which it is capable of resisting its influence.

One of its especial features is its localization. In my experience this is constant, and has been met with by me in over three hundred cases, notwithstanding that they all varied more or less in the degree and extent of the affected surfaces. Instead of the disease appearing here and there without any order of arrangement, we find that it is always symmetrical, affecting both sides of the body, and that the lesions are primarily situated over both cheeks, leaving the middle portion of the face free. The forehead comes next in point of frequency, and, in severe cases, occasionally the scalp is affected. As a rule, the eczema remains limited to these areas, but in many instances further extension takes place, and then the process is found over the *extensor* surface of the extremities,—not the *flexor*,—especially about the wrists, knees, and ankles. In only a few cases was the trunk implicated, and it could be regarded as an exceptional localization. From this description of the surfaces of predilection, one obtained from the large number of instances mentioned, it can be seen that there is a certain type followed, which imprints a distinctive stamp on the cases, so that they can be at once easily recognized and differentiated from other forms of the disease due to entirely different causes. For example, in its localization, seborrhœic eczema begins with scarcely an exception upon the scalp, then appears about the middle portion of the face and the ears especially; later the sternum and interscapular space, the inguinal regions, the axillæ, and the umbilicus are favorite sites for its development. There is, moreover, no symmetry in the arrangement of the lesions and in their clinical course, no resemblance at any time to those of the reflex type. Irritation eczema appears primarily there, where the irritant has been applied, while that form which is parasitic in nature, though occurring on various portions of the body, has no especial and favored site, with the exception, perhaps, of the folds of the skin or where two contiguous surfaces lie in contact.



Not only in their localization, but also in their general appearances, the clinical manifestations of the reflex type present distinctive peculiarities.

The lesions may consist of vesicles, or papules and vesicles, or papules alone, but they are aggregated together to form more or less circumscribed patches and groups, which have a somewhat herpetiform aspect. The base upon which the lesions are situated is indistinctly limited and prominent and puffy from the inflammatory infiltration. The itching is most intense and the child is continually scratching the affected surfaces, so that in a case of any duration, instead of the primary papules and vesicles, one is apt to see crusting and profuse weeping in places or over the entire patch. The plaques which are not scratched, however, usually present few traces of weeping, but become dry, scaly, reddened, and irritable, ready on the slightest provocation to become covered with an acute crop of papulo-vesicles or papules and vesicles. Owing to the excessive pruritic symptoms, the clearly-cut type of the reflex eczema is very usually obscured in cases of long duration, by the outbreaks of irritation eczema due to the constant scratching. The localization becomes indistinct, the surfaces are more diffusely affected, there is considerable thickening and infiltration of the skin, but yet, in its course and mode of behavior, there still remains considerable similarity with what obtains in the earlier stages of this form of eczema. It is in these features—the course and mode of behavior—that we find again characteristics which distinguish the reflex eczema from other forms of the disease. In these particulars the process presents the greatest variability. From day to day, and almost from hour to hour, alternations of improvement or of aggravation will be met with; periods of involution and of evolution alternate with each other with astonishing rapidity; a case which at night or in the morning appears almost well will, in a few hours, undergo a severe relapse, limited to the surfaces already attacked, or, in addition, fresh portions of the body will become implicated.

The course followed, however, by these cases and just outlined does not occur *per se* or from external irritation of one kind or another; if the patient is carefully watched and observed, it can be seen that the changes in degree and intensity are not eccentric manifestations of the disease, but occur simply and invariably in response to the recrudescence of some pathological condition which has already been in existence, or are due to the development of some new factor in some portion of the general economy. These pathological conditions, moreover, will be found to be those which are internal in nature or which can act only in a reflex manner, and among my cases gastric and gastro-intestinal disturbances have occupied the first place. These, operating both as primary causes and as determinative of relapses, may be catarrhal or fermentative or irritative in nature, or there may only be constipation present or some other functional trouble. Diet, also, played an important rôle, whether it was of such quality as to lead to gastro-intestinal troubles, or whether in quality and quantity it was deficient and induced malnutrition, etc., or whether it was directly pernicious.

cious to the entire organism, owing to its unsuitability to the patient's age or for other reasons. Dentition, again, was an important causal factor, and further ones found by me have been slight or grave cystitis, intestinal worms, oxyuris vermicularis, and particularly an adherent prepuce, a cause to which I will presently call attention more in detail.

As examples of the influence of some of these various causes in the production of the eczema I would cite the following cases:

CASE I.—Female, aged seven months, stout and well nourished, seen at my clinic in Demilt Dispensary. Eczema present three months, symmetrically distributed, under the form of discrete patches of papules, vesicles, and weeping areas closely aggregated, occupying both cheeks, and the *extensor* surfaces of the upper and lower extremities. Primary outbreak occurred one week after the parents had begun to give the baby a regular daily allowance of half a glass of beer, in addition to milk. The functional health was fair, with the exception of constipation. Treatment: Regulation of bowels, stoppage of beer, institution of diet suitable to age. No local treatment. Eruption disappeared in two and a half weeks.

CASE II.—Female, aged two months, seen in private practice. Mother suffering from abscess of the breast, yet insisting upon nursing child on that breast, and doing so notwithstanding all orders. Shortly after beginning to do this, the baby developed gastro-intestinal catarrh, and a severe grade of eczema distributed similarly to Case I. When the catarrhal trouble had been removed, and the mother had stopped nursing the baby, the eczema would disappear, but it would return as soon as nursing was again begun. The same course continued until the mother got well and the baby received proper nourishment. The eczema then disappeared permanently.

CASE III.—Female, aged six months, seen in private practice. Eczema occupying cheeks, ears, and forehead, profusely weeping and intensely pruritic. Duration three weeks. Movements of bowels green, offensive, three to five in number daily; much colic. Nursed by mother, who was in good health. Baby was given

R Hydrarg. bichlor., gr.  $\frac{1}{100}$ ;  
Ol. ricini,  
Mist. cretæ,  
Aquæ, āā ℥xx.

Sig.—One dose three times a day.

No local treatment. Eczema well in ten days.

These and similar instances could be multiplied *ad infinitum* almost, but they are sufficient to serve as examples, not only of some of the various modes of causation of the skin-affection, but also of the rapidity of cure when the exciting cause had been removed.

The dependence of the eczema of this type upon one or other of the causes mentioned was amply demonstrated by the course and mode of behavior of the process, and observation of the cases will show that the subject



resolves itself into a simple study and a correct appreciation of the laws of cause and effect. On the one hand, we will find a pathological condition present in some portion of the economy, and on the other, a certain constant type of eczema on the skin. Removal of the former will be followed by disappearance of the latter; recrudescence of the former, subsequent relapse of the latter. Constant repetition of this course, observed in over three hundred cases, most certainly shows that a most decided relationship exists between the cutaneous disease and the one or other pathological conditions existing or developing in the body, and, besides, it furnishes abundant proof for the conception that in its nature this type of eczema is reflex and neurotic. I do not see how the symptoms on the skin could be explained, except upon that basis, when we observe the eruption responding immediately to the development of an irritation in a distant portion of the body; varying in degree according to the intensity and persistency of the irritation; agreeing in its evolution and involution accurately with the changes in character of this latter; disappearing with its removal, relapsing with its recrudescence. As mentioned, I see no other way to regard this type of eczema except as a reflex neurotic one, after the many examples which I have had under my care, and a very strong fact in support of this opinion appears to me to be furnished by those cases to which reference has already been made and which were associated with an adherent prepuce.

I am not aware that the influence of this condition in the production of an eczema has ever been mentioned, but for considerably more than a year the subject has been studied by myself and Dr. Isador Dyer, house-surgeon of the New York Skin and Cancer Hospital, to whom much credit is due for the carefulness and accuracy of his observations upon these particular cases. As his observations, however, will be published later by himself, I will, therefore, simply give a brief outline of the facts obtained. We found that the patients were of various ages, some only a few months, the majority ranging from one to four and five years of age. In all, the eczema had been present continuously from its inception, had gradually extended more and more over the body, had been absolutely intractable and uninfluenced by any treatment, notwithstanding it had received all kinds of external and internal medication for months, and even for years in some cases. The grade of the disease was usually a severe one, intensely pruritic, but it followed the same localization as has already been mentioned, and behaved in the same manner as did those cases due to other and different reflex causes. The determination that an adherent prepuce was the exciting cause was made only after every systemic, functional, dietary, or other factor had been carefully excluded and every deviation from health had been corrected, so that the condition of the prepuce was the only cause which could be taxed as acting in a reflex manner. Treatment of this condition being then undertaken, its influence was made apparent by the immediate improvement of the eczema, the cessation of the acute outbreaks, the diminution of the pruritus, the amenability of the case to the external remedies used to remove

the thickened and infiltrated condition of the skin, and the ready progression of the case to a cure. When the prepuce was not attended to in these cases, none of these observations were, however, made, but the disease kept on its usual course, notwithstanding any and every mode of treatment devised. In the face of such results, it seems impossible to me to regard the eczema as other than due to the irritation transmitted in a reflex manner from the adherent prepuce, and inasmuch as all the other instances of the type obeyed the exciting cause, whether gastric, intestinal, or of other nature, in the same manner as did these particular cases, then it would appear proper to consider them likewise as reflex in origin and neurotic in nature.

The importance of recognizing the reflex type of eczema and of differentiating it from other forms of the same disease is a very practical one. Upon such recognition the entire treatment of the case will depend, the necessary indications being furnished by the one or other pathological conditions in existence. The general and prevailing impression is that eczema is a specific disease and calls for some specific treatment, which, though perhaps not known at present, yet will cure every case. Nothing could be more erroneous, and especially, to confine myself to the subject in hand, in regard to the reflex type of the disease. As I have pointed out, the reflex cause is manifold, and, therefore, the treatment will have to vary according to the causal factor in existence, but yet in every case it will have to be directed with a view to its removal. There are no remedies or drugs or procedures which I would recommend, those called for being precisely and absolutely the same as would be indicated, were there no eczema present. That is, gastric or gastro-intestinal disturbance, dietary irregularities of all kinds, dentition, etc., should be treated in the same manner when complicated with an eczema on the skin as when uncomplicated, and the *only* fact to be borne in mind is that the drugs, etc., made use of must be such as will remove the exciting cause of the eruption, and if they will do that it makes no difference what they are. When the reflex irritability of the baby is an exaggerated one, even after the exciting cause has been removed, I have, however, obtained signal benefit from small doses of antipyrin (gr. ss to gr. i or ii, ter in die). I have also derived much greater and better service in fermentative and catarrhal processes of the gastro-intestinal tract from small doses of hydrargyrum bichloridum than from calomel or any other intestinal antiseptic. It has generally been used by me according to the following formula :

R Hydrarg. bichlor., gr.  $\frac{1}{50}$  ad gr.  $\frac{1}{120}$ ;  
 Ol. ricini,  
 Mist. cretæ,  
 Aquæ, āā ℥xx.

Sig.—One dose three times a day.

In those cases the result of preputial adherence, of course the treatment indicated is circumcision or breaking up of the adhesions by stripping the prepuce back.



While the removal of the exciting cause is the absolute *sine qua non* in the treatment of these cases, yet the local remedies should not be neglected. They do not act in a curative manner, but simply as adjuvants, protecting the diseased surfaces, relieving the subjective symptoms, and thus preventing the production of secondary irritative outbreaks by the scratching. In my experience,

Acid. salicylici, gr. x;  
Ung. aq. rosæ, ℥i;  
Zinc. oxid., ℥ss.—M.

is as good as any other in the majority of cases. Still great benefit will be obtained oftentimes by the addition of ichthyol (two or three per cent.) to the same ointment, or of half a drachm to one drachm of the fluid extract of ergot. When the skin is considerably thickened and infiltrated and the inflammatory and exudative symptoms are not of a high grade, tar will be more useful.

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## THE TREATMENT OF CHOLERA IN FRANCE.

BY THOMAS LINN, M.D.,

Nice, France.

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THE therapeutics of cholera has not been modified much by the discovery of the comma bacillus, and our means of action in the treatment of the disease are almost as limited as they were before, because we are still ignorant of any sure method of neutralizing the cholera toxins.

Dr. Haffkine, who is working in the Paris microbiological laboratories, has made some interesting experiments, which consist in the application to cholera of the Pasteur method of attenuation and "exaltation" of the virus that is used for chicken-cholera cultures. M. Haffkine, first of all, determines what is called the "exaltation" of cholera virus by injecting into the peritoneal cavity of an animal a dose of virus taken from the surface of a pure culture liquid, of sufficient strength to cause death.

From this, by a series of gradations from animal to animal, he procures a *fixed virus* or "exalted" dose, which, given in a certain quantity, will inevitably kill an animal within a definite time. He then proceeds to attenuate this virus by a new cultivation every two or three days until the proper point is reached. *Two inoculations of this attenuated virus under the skin of an animal were found to protect it against all cholera infection, no matter how the poison was introduced.* The "fixed" and other most active forms of virus introduced into such protected animals had not the slightest effect upon them. M. Haffkine has inoculated himself and three other students with this attenuated virus. He concludes that *after six days of such vaccination man is proof against cholera!*

Drs. Brieger and Wassermann, in Germany, have also been making experiments in this direction. They use a culture of pure comma bacilli brought from Massowah. Without giving the details of the attenuation, we may say that they claim that animals inoculated with such liquids for four or five days were afterwards injected with pure cultures three or four times as strong, such as would kill unprotected animals in twelve hours, and yet they supported such injection without the slightest manifestation of toxic symptoms. These experiments are too new for us to form a correct judgment of their efficacy in protecting us against cholera. We can only hope that we are now in the way of finding an anti-cholera vaccination.

To come now to the therapeutics in use in France against the malady itself first of all. It has been found to be propagated largely by water, as seen during the present outbreak in the suburbs of Paris, whether the river Seine has been polluted by choleraic dejections by the present system of sewerage (*tout à l'égout*) emptying fecal matter into it, or by washing infected linen in it, or again by a regeneration of bacilli left over from former epidemics. In any case it is considered important, first of all, to purify all water used. This can be done by one of three methods: by filtration, by boiling, or by the addition of certain substances to the water, harmless of themselves, but sufficient to destroy the bacilli.

As to the first: It is claimed that the ordinary filters of charcoal and pebbles, etc., not only are of very little use even when often cleaned, but may become dangerous, thus doing more harm than good; hence only the modern filters made of porcelain and asphaltum, which retain not only the microbes but also a portion, at least, of the dangerous toxic substances in which they live, are recommended. Moreover, these filters must be kept constantly clean by boiling them in water that is slightly acidulated with vinegar every few days during an epidemic.

As to boiling water: It has several disadvantages. It takes the gases out of the water, renders it tasteless, and precipitates the carbonates. Besides, to boil all the water intended for public use would be very expensive. All this, however, should by no means deter physicians from advising the public to boil all water used during cholera attacks. Water may be boiled in hermetically sealed bottles and thus retain its gases, or it may be sterilized in the same manner as milk is sterilized.

Some of the towns near Paris have provided themselves with sterilizing apparatus and supply the inhabitants with purified water. It should not be forgotten that boiled or sterilized water *should be used at once*, as the micro-organisms multiply very rapidly in such liquids. The filtered ones keep much longer. Several physicians have lately gravely advised that "all ice should be boiled before being used!" Of course pure ice can be manufactured from pure water, but certainly all that comes from ponds and those makers who do not guarantee their products by an analysis of the water used should be rejected.

It is not only drinking-water that is dangerous, but also that which is used



for cooking, toilet, or other purposes. Milk is nearly always "*baptized*" with impure water, and should be boiled. Professor Budin finds that boiled cow's milk is about as good as woman's pure milk. The boiled cow's milk does not contain any microbes. By having the infants weighed daily at the Charity Hospital Dr. Budin proved this fact, and also found that children fed on such milk never had diarrhœa. Boiling or sterilizing is the only method for the preparation of milk, as filtration destroys its nutritive properties.

As to the use of drugs to purify water: It has long been the habit in the East to accomplish this with alum, and the natives in India and Egypt for ages past have practised this method. About three grains of alum to a quart of water will make it clear and free it from micro-organisms of a dangerous kind. The deposit, of course, must not be used. Another method advised is to add from ten to twelve grains of citric acid to a quart of water to purify it. It is probable that tartaric or hydrochloric acid would do as well to make these slightly acidulated lemonades, which are considered healthy and are agreeable to drink.

Before leaving the question of hygienic precautions advised here we may state that fecal matters should not be spread over the soil nor put into the rivers. Such material and all clothes used by cholera patients should be disinfected by carbolic or sublimated solutions. Such patients should be treated in special hospitals when possible, and not sent to general ones. All unhealthy houses should be left vacant. Butter is to be avoided when not cooked, as the cholera microbe lives in it for a month.

Fatigue and taking cold must be prevented. A flannel belt is useful. Digestion must be carefully looked after. It is known that the normal acid of the gastric juice kills the comma bacillus, while indigestion causes a number of hurtful microbes to invade the stomach and intestines, so that it becomes a more difficult matter then to have to fight more than the comma bacillus.

As contact may transmit the malady by touching articles, or even the hands of patients, the simple precaution of washing the hands often is recommended. Citric acid or antiseptic solutions to use in the mouth and for a nasal spray are also given to all in contact with the disease. In one word, if people are clean and sober, it is probable they can escape cholera.

As to medicinal treatment: During an epidemic any diarrhœa should be treated at once. The following is advised:

R Bismuth subnitrate, gr. xv;

Benzo-naphthol, gr. xii.

M. for one dose.

Sig.—To be repeated three times a day.

Or take a wafer of fifteen grains of salol before each meal, which should consist of meat and eggs only.

If cholera declares itself: Lactic acid, two and one-half drachms to

one quart of sweetened water, may be given each day in small wine-glassfuls every two hours; or this:

R Acid. lactic., ℥iiss;  
Syr. (sugar), ℥vii;  
Aquæ destil., ℥xvi;  
Spt. limon., ℥ss.—M.

Sig.—Half a tumblerful every two hours.

For vomiting: Champagne or cognac brandy in tablespoonful doses every hour, or *menthol* in four-grain doses.

For cramps and as the body gets cold, use bags or bottles of hot water, or sand with dry friction, or try rubbing with camphorated or ammoniacal liniments. A flannel bandage wet with turpentine and warmed with a hot iron is also advised, while green chartreuse liquor is given during this period.

If no amelioration of the symptoms takes place and collapse comes on, Professor Hayem's method of injecting salt-water is recommended. Many, first of all, use hot mustard-baths and hypodermic injections of caffeine, while oxygen gas is given. Failing in all this, they proceed to intra-venous injection of some such solution as the following:

R Sodii chlor., ℥ii;  
Sodii sulph., ℥iiss;  
Aquæ destil., Oi.—M.

This is warmed to 99° F. and injected into one of the veins of the arm or the saphenous vein of the leg.

Many French doctors do not approve of giving opium or its derivatives in cholera. It is claimed that they are poisonous, and the patient's kidneys, being inflamed, are unable to eliminate them.

In the first diarrhœa, however, laudanum combined with hot aromatic infusions of mint, melissa, etc., is often given, and some add the salicylate of bismuth.



# CLINICAL LECTURES.

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## INDIAN CHOLERA OR CHOLERA NOSTRAS.

BY PROFESSOR M. PETER,

Necker Hospital, Paris.

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GENTLEMEN,—We shall speak to you to-day on cholera. Every year from spring-time to autumn in Paris and the large cities we find a number of deaths occurring which are credited to “cholera nostras,” and those who are on the lookout for examples of this disease find that these are by no means isolated cases. Many cases of simple diarrhœa, becoming more and more severe, finally develop the choleriform diarrhœa, or else what has been called “cholerine,” with vomiting and cramps. Finally there is developed cyanosis with coldness of the extremities, cramps, vomiting of white matters and rice-like stools, which condition has been called “cholera nostras,” and completes the morbid picture.

Our nosographical experts say that the reason why it is “nostras” and not “Indian” is because it is not contagious nor epidemic. But I think that it is contagious, and I hope to prove this to you by relating what happened at Nanterre and comparing it with some cases at Breteuil in 1884. It is also epidemic, as you will see. At the present moment, both in Paris and in the country, there are small epidemics of cholera, and if they do not increase as they do in India, it is because we have not in France the same favorable conditions for its spread, such as extreme poverty, over-crowding, extreme heat, etc. Let me mention here a few facts to support my statements. We have just seen a case of real cholera that was as dreadful in its severity as any Asiatic cholera of the most pronounced type.

B., aged forty-nine, was a fireman on a steam-engine at Grenelle. On Wednesday he had worked all day, came home at seven in the evening, took supper, and went to bed. At midnight he was taken with nausea, and twice vomited what was apparently undigested food. Then up to eight o'clock in the morning he had from seven to eight stools of matters as clear as water. During this time he had *cramps in his legs*, which disappeared when the diarrhœa stopped. At 10 A.M. he was brought here to our hospital in a condition of collapse. When we called loudly to him he opened his eyes and tried to speak, but his voice was unintelligible. The face was of a leaden color, the cheeks hollow, and the eyes sunken with black rings under them. The arms were cold while the legs were still warm. The

nails were violet in color, the skin of the fingers and toes was wrinkled, while that of the rest of the body was as though it was glued to the bones with every appearance of a dry cadaver. The lower abdomen felt soft to the touch; his tongue was dry and white, while his thirst was intense. There were no stools while he was here, nor cramps. Dyspnœa was considerable, with forty respirations per minute. The heart beat feebly and the pulse could not be counted. We put him to bed, placed hot bottles on all sides of him, and he was rubbed continuously. Two hypodermics of ether and caffeine were administered together with hot tea and paregoric by the mouth, but we could not warm him up. The collapse increased and the pulse disappeared. Death ensued in an hour after his admission to the hospital. All this happened, you must remember, within twelve hours. His wife tells us that her husband worked almost under a steam-engine placed in a small room that was a sort of artificial India or Senegal. He drank the unfiltered water of the river in large quantities. He lived at Grenelle, and you know that quarter of Paris is only separated by the river Seine from Passy. Well, a young woman had died only a few days before at Passy with symptoms similar to those of this man. So that there was at least one case in the neighborhood.

The autopsy, which was made four hours after death, confirmed the diagnosis. The skin having been incised in the median line of the thorax, and drawn back over it, the cellular tissue was found so dry that it cracked under the necessary traction. Everything seemed dried up. The muscles stuck to the fingers. The external surface of the pericardium was also dry, and presented a number of wrinkles looking like a half-dried bladder. The heart itself was normal, with its valves in good condition. It contained liquid blood, not coagulated, and resembling serum in color. The lungs had the same peculiar non-aërated blood in them. On opening the abdomen the large omentum was found to be very dry, and adherent to the intestines by a soft paste-like substance. The whole mass of small intestines were of the rose color or *hortensia* (Japan rose). They contained seven hundred and fifty grammes (about one and seven-tenths pints) of a liquid without any smell, in which an enormous quantity of flaky, white membranous substance was floating. Between the valves a white, creamy mucous deposit was found, and in certain spots what resembled punctiform hemorrhages were noticed. On the mucous membrane, which was of the same rose color throughout, could be seen a large quantity of white granulations of a brilliant appearance, which were in all probability hypertrophied glands. The large intestine was about normal, and the remaining organs were apparently in good condition.

We are told by the classic authors that Indian cholera is characterized by vomiting, rice-like stools, cramps, and psorenteria, with *hortensia* or rose-colored intestines, etc., and you notice that we had all these appearances in our patient. Then what is called Indian cholera in Calcutta is what we call cholera nostras? It would seem so. A few years ago there was con-



siderable discussion as to what kind of cholera was prevailing at Marseilles, and it was not until it came to Paris and was generalized all over France that it was finally concluded to be real cholera. You are aware also that, according to Koch, the stools contained the comma bacillus. Well, we have found it also in our patient's stools. Dr. Lion, our *chef de clinique*, made the preparations and secured the real comma bacillus, finding in the cultures a sort of air-bubble, in the centre of which myriads of bacilli can be seen. Dr. Metchnikoff also saw these cultures, and says that these bacilli are the same as those Koch found in Asiatic cholera dejections, and not those of Finkler and Prior. So that in our case the bacilli were recognized by competent observers to be the real microbes of the Indian cholera. Where did he contract the disease? Could it have arisen spontaneously?

Let us come now to those writers who would tell us that this is not real cholera because there was no epidemic or contagion in the case. Allow me to mention some facts in regard to Nanterre, which, you know, lies in a valley close to Paris. In this town there is a large hospital and prison where over four thousand persons are kept, although the buildings were erected for half that number. There are three thousand five hundred in the hospital and six hundred prisoners. The first class are old, impotent patients, such as hemiplegic, paraplegic, and other cases. They are badly fed, only get half a pound of meat three times a week, and they drink impure Seine water. So, then, we have in this place over-crowding, bad food, bad air (for there are four rows of beds in each ward where there ought to be but two), added to bad water, and you can understand why an epidemic of cholera broke out there in April. In two weeks they had fifty-one cases, and forty-nine of them were fatal, or a mortality of ninety-eight per cent. It must be admitted that Indian cholera could not have been more destructive. The first persons taken sick had diarrhœa, then a few hours later cramps in the limbs, coldness of the extremities, and death in from eight to ten hours. In all epidemics it usually happens that the weakest are attacked first and die rapidly. Later the malady seems to make its evolution more slowly, death coming only after from thirty-six to forty-eight hours of sickness. But as many as fifteen died in one day. The post-mortem showed the hortensia color of the intestines, and all the signs that are found in real cholera; moreover, no patients suffering from diarrhœa were taken into this hospital before the outbreak.

Let us now speak of what happened at a home kept by the Sisters of the Poor at Breteuil, in Paris. There were two hundred and fifteen old people there, and a similar epidemic commenced on the 10th of last November, in which forty-seven men and twenty women were attacked. All the men died, together with eighteen of the women (two of whom were Sisters of the home). The difference in the mortality between men and women was seen also at Nanterre. No doubt it was because the men were more or less alcoholics while the women did not drink. Many of the men were formerly employed as coachmen, servants, etc. The first one attacked had been out

on a visit to relatives among whom there were some cases of diarrhœa. So he may have introduced the cholera into the institution. It was remarked that only the old people in this crowded home were attacked, and none in the houses that adjoined the building on both sides.

Allow me here to say a few words on the parasitic doctrine. Was the malady caused by the bacilli, and, if so, how may the virulence of the microbes be accounted for? The first theory supposes the pre-existence of microbes or visible and invisible germs which come into existence in some such place as the banks of the Ganges, or on the route to Mecca, and attacking the passer-by they fasten themselves firmly upon him.

The doctrine that I believe in and feel prepared to defend is quite different. The choleraic poison can be borne and finally overcome by the healthy individual, but allow it to enter an individual placed under such unfavorable conditions as general debility, uncleanness, advanced age, or neglect of the usual laws of hygiene will produce, and the result will be very different. So that when we can ameliorate the conditions of such lives and make our cities healthy, we shall prevent the development of this poison, call it microbe, ptomaine, or what not.

In regard to the spontaneous development of cholera called "Indian," let us give some facts in opposition to the more exclusive doctrine of importation, that pre-supposes a contagion, and of course the existence of a microbe.

The epidemic of 1884, which commenced at Toulon, could not be traced to any importation of contagion. Of that in Spain during 1890, Professor Arnould says, "The cholera appeared in Spain in May, 1890, and no one can say where it came from." This is not the only time that the etiology by importation was at fault. It by no means comes from India nor Arabia, passing by Egypt. The cholera that broke out in Hedjaz in July and August of 1890, during the Mecca ceremonies, was an epidemic of great severity, and it occurred two months after the epidemic in Spain. As we are speaking of the genesis of cholera, let us say a word about that of Mecca and the Ganges. In this last place there are gathered on the banks of the river thousands of natives, mostly poor wretches, who have travelled from great distances supported by religious enthusiasm. After they arrive at their destination they are forced to submit to fasting, under the excitement of religious fanaticism superimposed upon tiresome travel, bad food, bad water, and a torrid sun. There are then more than enough conditions to produce the cholera without the intervention of a microbe. Professor Proust, in his report to the Academy in regard to the Mecca pilgrimage and the cholera there, says, "The number of the victims was ten thousand. The large stream which was used as drinking-water was first used as a bath by thousands of pilgrims. The number of sheep sacrificed was one hundred and eighty thousand head, and that which was not eaten was allowed to rot on the ground, and putrefaction ensued."

What is very instructive in regard to Nanterre is that we had in the



same hospital there an epidemic of dysentery in 1891, one year before the epidemic of cholera. We found that the *bacillus coli communis* in the intestines, which as a rule is inoffensive, became so virulent as to cause death. Without doubt it was the physical condition of these poor creatures that caused these microbes to become dangerous. The post-mortem examinations of two of these patients who were sent to this hospital were made by M. Lion and M. Marfan, who found punctiform hemorrhages and fatty degeneration in the intestines, and the bacilli in the blood showing that they had died from a general infection, having for its starting-point some ulcerations of the large intestines. The condition of collapse with which their malady terminated was quite like what was observed in another epidemic at Beaujon Hospital (Paris) by M. Gilbert and M. Girode, who found the same *bacillus coli communis* in the stools, and they concluded that it developed cholera. So that this microbe may be cholero-genetic or dysentero-genetic, as one pleases. It is likely that bad food and bad water had more to do with its virulence than any inherent properties in the microbe.

Let us discuss two points of doctrine. The principal argument of many is that "Indian" cholera is contagious and that "cholera nostras" is not, and that the first is epidemic and that the second is not, as we said before. Dr. Audige gives me the following facts: "On Thursday, May 5, I was asked to see Mrs. B., fifty-four years of age, who had been taken with diarrhoea during the night. The stools were liquid. There were cramps in the legs and great thirst. Curious to say, there was anuria, although the lady had diabetes. This is characteristic of cholera. She died the next day, with a temperature below normal." It seems she had come from a visit to her sister at Nanterre, and this sister died of "cholera nostras" a few days afterwards. This was certainly an example of the contagious nature of the disease.

Cholera nostras and Indian cholera present, then, the same symptoms, the same termination, the same contagion, and the same epidemic manifestations. So that they are, for all practical purposes, one and the same malady.

Does this mean that cholera is going to attack Paris and the cities of Europe? Not at all, for we live under better conditions of hygiene than they do in Mecca.

The object of this lecture has simply been to show how a series of morbid troubles can increase and become an epidemic. Diarrhoea first develops, which becomes more and more severe, and finally cholera is produced.

We must not do as the ostrich does, and hide our heads in the sands of ignorance so that we shall not see danger.

To sum up this matter: At the doors of Paris (at Nanterre) there exists a manufactory of cholera. In 1891 it produced dysentery, and in 1892, cholera! This is a sort of involuntary experimental pathology. This malady is the result of over-crowding, bad air, and insufficient food. To prevent the disease it is only necessary to stop the sending of patients to

this place and reduce the number already collected together, feed them better, and give them good air and water. It seems to us that when the patients die it is but small consolation to them or their friends to learn that they did not die from "real cholera" but from "cholera nostras."

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## VARICOCELE.

CLINICAL LECTURE DELIVERED AT FREEDMEN'S HOSPITAL.

BY N. F. GRAHAM, M.D.,

Professor of Surgery in the Medical Department of Howard University, Washington, D.C.

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GENTLEMEN,—We have here this evening two cases of well-marked varicocele, on which I propose to operate with the hope of securing a radical cure. Varicocele is simply a varicosity of the spermatic and pampiniform veins of the spermatic cord, which have become elongated, tortuous, dilated, and thickened. This condition, which I can hardly look on as a disease, is not commonly met with in the very young, or in persons advanced in years, but is not by any means rare during early manhood and the prime of life. The exciting causes of the development of this condition of the veins are chiefly due to gravity and mechanical obstruction to the return of the blood through the spermatic veins. This obstruction may be so persistent as to cause very great enlargement and lengthening of the veins, so that they pass or drop below the testicle and reach down the thigh a number of inches. Such an exaggeration is not common. Ordinarily the mass is of moderate size, not accompanied by pain, and having no effect on the virile powers of the individual. However, cases are met with in which the pain is quite severe, and in many instances the mental worry is considerable, and in some excessive. Varicocele of the left side is very much more commonly met with than that of the right, the proportion being about seven per cent. for the right and ninety-three for the left side, whilst about nine per cent. of all cases have varicocele of both sides. The reasons given for the greater frequency of the affection on the left side are, first, the greater length of the vein, and therefore a longer and heavier column of blood to support on that side, and, second, that the left spermatic vein opens into the left renal vein at right angles to that vessel and to its blood-current. The veins on both sides are probably equally pressed upon at the inguinal canals by the abdominal muscles during exertion or in coughing. The left vein is also pressed upon by the loaded colon, which may act as an etiological factor. The right vein is shorter and it opens into the inferior vena cava, not at right angles as does the left, but more in the



direction of the blood-current. The length of the left vein and the manner of its connection with the renal vein are, I believe, the most active factors in causing the varicosity. The absence of valves in the left spermatic vein has not been so fully demonstrated as to warrant the opinion that that is an important cause.

Varicocele is most common during the period of the greatest activity of the sexual organs,—from fifteen to thirty-five. At this period of life a freer supply of blood is necessary for the performance of the sexual functions. Constipation, much standing, and any violent exertion which calls into play the abdominal muscles predispose to the disease. Owing to the slowness of development and the absence of pain the veins may become considerably enlarged before the change is noticed, but later on there is a sense of weight, dragging, and uneasiness in the testicle and cord. The dragging pain extends up the loin, and this condition is aggravated by long standing or by very active muscular exertion. As you see in this case, there is a flaccid condition of the scrotum and the testicle hangs lower than normal. In this first case you can see the veins like whip-cords occupying the region of the spermatic cord, and in this other case the dilated and tortuous veins descend below the testicle. In the cases before us the dilated veins can be easily seen and felt, are soft and elastic to the touch, and their feel is usually compared to a bag of earth-worms. When the patient lies down the veins diminish in size, and fill up with great rapidity when the erect position is assumed. I ask this patient with the greatly enlarged veins to cough, and on placing my hand over the scrotum I can feel an impulse transmitted to my fingers, but not so marked as we get in hernia. The majority of the cases of varicocele met with in practice are not large or painful. Yet you will rarely meet a person suffering with this condition to whom it is not a source of great mental worry and anxiety, with the constant fear before him that he may become impotent at some time. Indeed, a large number who come under my observation fancy that the virile power is not as active as it should be, and for that reason alone (in the main a fancy) they seek the advice of a physician. Many of them fall into the hands of charlatans, who seek to confirm their fears in order to extort money.

The diagnosis of varicocele ought to be made without difficulty, yet it has been mistaken for hernia. The reliable test in arriving at a diagnosis is to make the patient assume the recumbent position, when the veins will empty themselves, or the hernia, if reducible, will recede. Then press the finger firmly over the inguinal canal while the erect position is assumed. If it is a varicocele, the veins will speedily fill; if a hernia, the tumor will be retained by the finger pressure. The history of a hydrocele is that the scrotum commences to fill from the bottom; is smooth and elastic; palpation develops fluctuation, and it is translucent and does not diminish when the patient lies down.

The treatment of varicocele consists of the palliative measures and the

operation for the radical cure. The former plan includes the constant wearing of a suspensory bandage. The parts should not be kept too warm, for warmth and moisture relax and take away the support of the scrotum from the dilated veins. Cold in the form of a douche to the genitals night and morning, solutions of muriate of ammonia, hamamelis, etc., have been used with some benefit. The bowels should be kept open in order to avoid loading of the colon, and if the general health is defective, tonics should be administered.

When these measures are ineffectual it becomes necessary to operate, as in the cases before us. There are two methods generally adopted by surgeons,—the subcutaneous ligature, a plan first suggested and put into practice by Ricord, but so improved on by Dr. Keyes that it is known as Keyes's method; also the incision and ligature by what is known as the open method. I rarely employ the latter, and only when I fail after repeated efforts by the concealed ligature. I do not confine myself to Keyes's plan, but very often adopt the plan so long successfully practised by the late Dr. Agnew, of Philadelphia.

We are now prepared to operate. The scrotum is shaved and made aseptic by careful washing and a sublimate douche. I now throw fifteen minims of a four-per-cent. solution of cocaine into the upper part of the scrotum in the field of the operation. I have here, as you see, two of Keyes's varicocele needles; one threaded with strong twisted silk, which is not very thick, but has been tested, and is capable of bearing all the strain necessary to very firmly constrict the veins. I find the vas deferens located in the posterior part of the cord, near the base of the attachment of the scrotum to the perineum, which can be easily recognized by its hardness to the touch and the manner in which it jumps from under the thumb and finger when squeezed. I separate the vas deferens from the mass of veins, carrying it backward. With it is carried the artery. They are now resting on the ball of the finger and thumb, whilst the terminal portion of the finger firmly compresses the walls of the scrotum. Anterior to and close to the nails, I now introduce the threaded needle, passing it completely through both walls of the scrotum from front to back, and then leave it in the hands of the assistant. I now take the unthreaded needle and introduce it at the same point as the first, and now that its point is well within the dartos, it is carefully worked between the dartos and veins, and so passed around the mass. I make its point emerge at the opening of exit made by the threaded needle. Now the thread is taken out of the eye of the first needle, and the second is threaded with it and the needle withdrawn. It is clear that the mass of veins is now encircled with the thread loop, which I simply tie with a single instead of the friction knot, and cut off both ends short. By separating the integument of the scrotum the entire loop becomes subcutaneous, and if no germs have been carried in, the thread will become encapsuled and no harm will result. It is not an unfrequent practice with me to cut only one thread, leaving the other hang-



ing out, which enables the loop to be removed in from ten to fifteen days; a plan which is very satisfactory indeed, and, as a rule, the patient is better satisfied if the entire thread is removed in the course of a few days. The scrotum will be now washed with a sublimate solution and wrapped in gauze,—iodoform or bichloride gauze will answer equally well. The patient is to be placed in bed, where he will remain for a couple of days, after which he can move about, and can resume his work in ten or twelve days.

I will now operate on the next patient by the plan of Dr. Agnew, one which I like, myself, very much. The scrotum is prepared as for the other operation and the field injected with cocaine. I now take this steel pin two and a half inches in length, having a large head, and thrust it through both walls of the scrotum from behind forward, of course taking the same precaution as I did in the first operation to isolate the vas deferens and artery. Now, with the Keyes needle threaded with a strong silk thread which is carried through the eye of the needle to its centre, I enter the scrotum at the point of exit of the pin, and when within the dartos, carry the point round over the veins and bring it out at the same point entered by the pin. I now pull forward the loop over my finger, and withdraw the needle, unthreading it. The loop is slipped over the head of the pin and the free ends of the thread tied over the point and drawn tightly enough to compress the veins. The point of the pin is now snipped off with a pair of wire nippers, a small disinfected cork placed on the end, and the scrotum covered with gauze. The patient will now be placed in bed, where he will remain for a couple of days, after which he can get up and move about his room. At the end of eight days the pin will be pulled out, when the loop can be very easily withdrawn. This plan has advantages over any other in which the ligature is removed subsequent to the operation, for the moment the pin is taken out the knot is freed and the thread is easily withdrawn. Considerable hardness remains for some time at the seat of the ligature, which is a cause of some solicitude to the patient, but it soon disappears completely in cases in which the thread has been removed; but often it is slow of disappearance when the thread is left in, as by the method first adopted by me to-night. In the case of nervous, anxious, inquiring subjects, I yet prefer the pin and thread method, for it saves explanations and increases the confidence of the patient.

# REVIEW OF MEDICINE.

## MEDICINE.

IN CHARGE OF JUDSON DALAND, M.D.,

Instructor in Clinical Medicine and Lecturer on Physical Diagnosis and Symptomatology in the University of Pennsylvania, and Assistant Visiting Physician to the University Hospital.

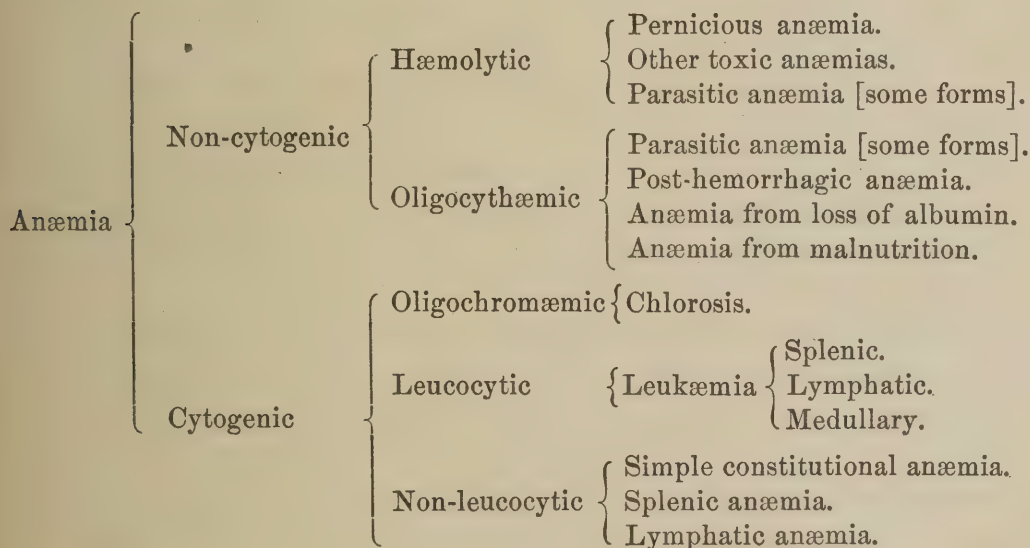
ASSISTED BY

JOSEPH P. TUNIS, M.D.,

Philadelphia.

The Pathology of Pernicious Anæmia. (*Medical News*, Philadelphia, October 17, 1891.) By J. P. Crozer Griffith, M.D., and Charles W. Burr, M.D.

For purposes of study these writers have proposed the following classification of anæmia:



They believe firmly that chlorosis and pernicious anæmia are widely separated from each other, and that the latter has certain peculiarities that sharply distinguish it from most other varieties. From their experience with a number of cases in which it was possible to investigate the disease thoroughly by post-mortem examination, they endorse the view that there is in this disorder a deposition of iron in the liver unlike that observed in any other disease, and that—as a deduction from this and certain other conditions found—pernicious anæmia is a form of hæmolysis. “Whether there exists any defect in the formation of the corpuscles that predisposes



to their destruction when the proper destructive agents are brought to bear, it is as yet impossible to determine."

Pernicious anæmia is, therefore, a truly independent affection, which may be defined as an extreme and increasing anæmia, without marked loss of flesh, not directly secondary to any anatomical lesion or to the presence of any parasite, but probably due to the entrance into the portal circulation from the intestine of some certain hæmolytic agent, the origin of which is unknown, but that is possibly of the nature of a ptomaine.

**The Ulterior Effects of Pneumonia on the Kidneys.** (*Chicago Medical Recorder*, June, 1892, p. 287.)

Dr. I. N. Danforth draws the following conclusions in regard to the relations of pneumonia to renal pathology :

1. Pneumonia may, and generally does, produce some degree of hyperæmia of the kidney ; the amount of hyperæmia depending partly upon the area of lung involved and partly upon the temperature of the patient.

2. Albuminuria is frequently present in pneumonia, beginning in the early stage, and continuing until defervescence is established, when it generally disappears.

3. Hyaline tube-casts are not uncommon in pneumonia, but they are likely to be small, few in number, and destitute of morphological elements, and are therefore likely to escape notice.

4. The albuminuria of pneumonia may persist, and become the starting-point of chronic nephritis.

5. In many cases, chronic interstitial nephritis antedates the pneumonic attack.

6. Experience shows that renal congestion, as demonstrated by albuminuria and tube-casts, may occur in any and every case of pneumonia ; therefore the usual methods of diagnosis of renal lesions should be employed in every case of pneumonic invasion.

7. There are no characteristic or constant ulterior effects produced by pneumonia upon the kidneys ; but if any such effects follow, the most likely lesion is chronic parenchymatous or tubal nephritis.

**Clinical Observations on Diphtheria and Croup.** (*Edinburgh Medical Journal*, August, 1892, p. 126.) By Albert Wilson, M.D.

There is no guide as to the virulence of diphtheria. At the onset no man can say whether the case is mild or malignant, or if the case will recover *per se*, or whether the patient will die in spite of the utmost skill and care. Cases with high temperature and much constitutional disturbance may rapidly recover ; while, on the other hand, cases with very slight fever may assume a depressed or typhoid state and slowly die, without any rallying power. Nor do the local symptoms throw any light on the prognosis. The following points should be specially emphasized :

The early recognition of mild cases of diphtheria.

Rigorous antiseptics of the whole area in danger of being invaded.

In malignant cases to repeat the cleansings hourly till abatement of the disease. The recognition of diphtheria as a constitutional disease, and therefore the administration of internal remedies. The importance of watching *the pulse-rate*, and discarding the temperature chart. Alcohol is a drug to be avoided, and strychnine a drug to be depended upon. Tracheotomy is hopeless in the last stage, on account of diphtherin poisoning of the medulla.

After the larynx has been invaded it is best to persevere with strong antiseptic inhalations, which can alone save, especially if aided by small doses of pilocarpine. And it is wise to save the patient the suffering of tracheotomy, as unnecessary at the beginning of laryngeal infection and useless towards the end.

Suggestions as to the Prophylaxis and Treatment of Cholera. (*Medical News*, September 17, 1892, p. 326.) By Dr. D. D. Stewart.

As the comma-spirillum of cholera is not spore-forming and readily perishes in acid media, the normal stomach acidity being sufficient to render it inert, it follows that though taken in some quantity with the food by an individual with a healthy digestive apparatus, infection is unlikely to occur. It is for this reason, therefore, that attention to gastric digestion is doubly indicated during an epidemic of cholera, and care should be observed not only in the use of *boiled* water for drinking and culinary purposes, but also in the selection and preparation of edibles. Those persons suffering from any form of gastric disorder, attended with diminished acidity of the contents of the stomach, should put themselves under the proper treatment for their deranged condition as early as possible.

The writer strongly recommends hydronaphthol as both a prophylactic against and a remedy in cholera. It is a harmless antiseptic, insoluble in the stomach, and slowly soluble in the alkaline secretions of the small intestine. It is therefore well adapted to exert its beneficial effects along the intestinal tract. A suitable dose would be from five to ten grains three or four times daily. As it has a slightly retarding effect on gastric digestion, but none whatever on duodenal digestion, it may be prescribed in keratin-covered pills, the coating of which is insoluble in the gastric secretions, but soluble in the alkaline secretion of the duodenum.

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## THERAPEUTICS.

IN CHARGE OF ALEXANDER D. BLACKADER, B.A., M.D.,  
Professor of Therapeutics, McGill University, Montreal, Canada.

Treatment of Small-Pox by Means of Darkness. (*Lyon Médical*, June 12, 1892; *British Medical Journal*, July 16.)

Seven years ago Gallavardin drew attention to the value of the old plan



of keeping patients suffering from this disease absolutely away from all solar light. This solar darkness had to be complete and uninterrupted, otherwise no beneficial results were obtained. In the present article he gives the result of his experience since 1876, and finds that if this treatment be carried out, the disease presents no period of suppuration, and that in consequence the subsequent scarring is infinitesimal.

**The Action of Digitalis in Cases of Aortic Regurgitation.**—An interesting series of articles have appeared lately in the *British Medical Journal* on this subject. Dr. Alfred Barrs (No. 1628, March 12, 1892), in a carefully-written article, argues that the essential point which we have to treat in any given case of valvular disease, mitral or aortic, is the effect produced by that lesion upon the blood-pressure, and through it upon the capillary circulation. He thinks there is no essential difference in the kind of failure, or in the method by which either valvular lesion produces the failure in the circulation. In his clinical experience, there is no danger in giving digitalis in any case of aortic disease requiring treatment. The beneficial effects in many cases are very marked, but in general we must not expect such rapid and striking results in aortic as in mitral disease. His conclusions are stated in the following propositions: (1) In all cases of valvular disease, the chief desideratum in regard to the heart itself is the condition of the cardiac chambers in respect to dilatation and hypertrophy. (2) That the presence of symptoms in cardiac disease means always failure of compensation. (3) That the condition described as over-hypertrophy or over-compensation does not exist. (4) That the dangers in aortic disease arise from the same cause as the dangers in mitral disease, namely, failure of the compensation,—that is, failure of the ventricular muscle to overcome the ever-increasing work put upon it. (5) That if digitalis is safe and beneficial in mitral disease, it is equally so in aortic disease.

Dr. Seymour Taylor (No. 1631, April 2, 1892) argues from clinical experience against some of the points advanced by Dr. Barrs. Dr. George W. Balfour, of Edinburgh (No. 1640, June 4, 1892), discusses the dynamics of the question, and in a very scholarly paper shows it is a mistake to infer that digitalis, by prolonging the diastolic pause, favors regurgitation in cases of aortic valvular lesion, and in this way tends to fatally embarrass the heart's action. The rapid filling up of the ventricle through the auricular valve tends very quickly to counterbalance the backward pressure producing regurgitation. In the early stages of aortic incompetence, the nutrition of the heart is specially well provided for; there are no symptoms, and no treatment is required. When from any cause, however, the compensation is disturbed, an aortic heart will be found as amenable to the beneficial influence of digitalis as any other failing heart, but larger doses are required,—Dr. Balfour thinks three times as much as would suffice for a mitral heart. Even should the pulse under treatment become abnormally slow, which is not usual, and certainly not needful to secure benefit, we may rest assured that excessive regurgitation is not promoted; and,

although sudden death is not at all unlikely to happen in a badly compensated aortic heart, whether treated with digitalis or not, digitalis is not to blame. On the contrary, the judicious use of digitalis is the most efficacious treatment in all cases of failing heart, whether the failure be accompanied by mitral or aortic regurgitation. In failure dependent on arterio-sclerosis alone, the tonic influence of digitalis on the heart is hindered unless we combine it with some drug which unlocks the arterioles, and so prevents an increase of the blood-pressure, already abnormally high.

The Therapeutics of Gout and the Uric Acid Diathesis. (*Lancet*, July 16, 1892.) By Sir William Roberts, M.D., F.R.S.

In closing the very interesting series of Croonian lectures, Sir William Roberts says that the mischief done by uric acid in gout is contingent on its precipitation as the crystalline biurate in the tissues or in the fluids of the body, those tissues suffering more frequently and more severely which contain the largest proportional percentage of sodium salts. One of the main factors in determining uratic precipitation is the percentage of urates in the blood, and our power of controlling this lies almost entirely in the direction of regulating the diet. He considers it proved that the ingestion of large quantities of proteid matter is attended with the increased production of uric acid. Animal proteid substances do not differ in this respect from vegetable proteids. Fat, starch, and sugar have not the least direct influence on the production of uric acid. In ordering a diet for persons predisposed to uratic precipitations, regard must be had to the condition and peculiarities of the patient as well as to the ailment. In general, such should be advised to partake sparingly of butcher's meat, fowl, game, and cheese, and to use, as freely as digestion will permit, bread, rice, garden vegetables, salads, and fruits. The use of common salt with the meals should, as far as possible, be restricted. In regard to the administration of drugs, he says it should be remembered that we have to make an impression on the whole volume of the blood, and not merely on the comparatively small bulk of fluid forming the diurnal discharge of urine. A practicable dose of an alkaline carbonate may enable us to radically alter the urine, which is a dead excretion, but the same dose only produces a feeble and transient effect on the mass of the blood and lymph. Experimental evidence entirely destroys the hypothesis that the addition of an alkaline carbonate to blood-serum, impregnated with uric acid, produces an appreciable effect on the process of maturation, and on the advent of precipitation of the crystalline biurate in the medium. At the same time, there is no warrant for the assumption that there is an acid dyscrasia in gout. While solutions of carbonate of lithia and piperazine possess a high solvent capacity for free uric acid, experiments indicate that the addition of these substances in the proportion of one-tenth per cent. and two-tenths per cent. to blood-serum or synovia had not the slightest effect in enhancing the solvent power of these media on sodium biurate, nor in retarding its precipitation.



In regard to the use of mineral waters he advises gouty patients either to avoid entirely the use of water from springs which owe their activity to sodium salts, or to use them very sparingly. It is difficult, he says, to believe that they can do any direct good, and easy to believe that they can do direct harm. The beneficial results from those mineral springs which have proved most serviceable is chiefly dependent on their watery constituent diluting the blood, and thus lowering the percentage of urates and sodium salts. Gouty persons should be encouraged to habitually use water liberally. In some cases it may be possible to imitate with plain water the two or three weeks' course at the spa, and repeat it two or three times a year as a prophylactic measure.

**Therapeutics of Cholera.** (Thérapeutique du Choléra. *La Médecine Moderne*, August 18, 1892.) By Dr. G. Daremberg.

The writer insists on the careful purification of all water used in the household, and especially of that used for drinking purposes. This may be effected by some filters, by boiling, or by chemical means. Under the latter he advises the acidulation of the water with citric, tartaric, or hydrochloric acid. Impure ice is often a source of danger. Infected or impure water used for toilet purposes may convey contagion. In time of an epidemic milk should be boiled or sterilized. Butter will retain the contagion for a long time. Fruits and raw vegetables which have lain in contact with the earth are dangerous. Excessive fatigue or chills must be avoided. A band of flannel round the loins is a prudent precaution. Food should be taken regularly. Indigestion favors the development of micro-organisms in the intestinal canal. As the germs of cholera readily cling to objects with which they are brought into contact, the strictest antiseptic precautions in all points are necessary, especially in the case of nurses and physicians attending the sick. The frequent washing of the hands is a practice of great utility. The teeth must be carefully and thoroughly brushed with a solution containing some disinfectant. Disinfection of the mouth should be mechanical, by friction, and chemical, by disinfectants. Mere rinsing is not always sufficient. The nasal passages should also be kept, as far as possible, disinfected. When a case of cholera breaks out in a family, the most absolute disinfectant measures should be employed, in reference not only to the dejections, but to all the dishes used and the linen; the hangings of the room should be burnt and the room disinfected; afterwards the wood-work should be rubbed down with bread-crumbs, which must be burnt immediately.

Diarrhoea in times of cholera should be promptly treated. The author recommends a powder containing bismuth subnitrate, one gramme (fifteen and a half grains), benzo-naphthol, three-fourths of a gramme, three times a day, or, if this be not successful, one gramme of salol is recommended three times a day before food. When the stools become choleraic he recommends a one-per-cent. solution of lactic acid in sweetened water. Of this

a wineglassful is to be taken every two hours. Champagne or brandy should be given freely. Thirst should be slaked by acid drinks, or tea and coffee, but large quantities of fluid increase the tendency to vomiting; as there is always a tendency to renal congestion and defective elimination, opium should be avoided, as a rule. Hot water bottles should be used to maintain heat. The sick-room should be large and airy, but the patient must be carefully shielded from draughts. If improvement do not take place, recourse should be had to intravenous injections of saline water (five grammes of sodium chloride and ten grammes of sodium sulphate to the litre—about thirty-four fluidounces—of distilled water): of this two litres, at a temperature of 38° C., may be injected. Its beneficial effects have been sometimes remarkable.

**Sulphonal as an Antispasmodic.**—Dr. Edmund Andrews, of Chicago, at the meeting of the American Medical Association, reported a case in which fifteen-grain doses of sulphonal gave complete relief to very painful cramps in a recently-fractured femur. He says the antispasmodic power of the drug is often more useful than the sleep-producing power.

**Bromide of Ethyl as an Anæsthetic.** (*London Lancet*, July 9, 1892.)

Bromide of ethyl has been somewhat extensively employed in Vienna for anæsthetic purposes. In Professor Billroth's clinic it was used three hundred times without mishap. Death, however, subsequently occurred in the case of an out-patient, who was about to have a large boil on the arm incised. While anæsthesia was being induced in the usual way the man suddenly became cyanotic, and the respiration and cardiac movements ceased. Artificial respiration was persevered with for an hour and a half, but was of no avail. At the post-mortem examination evidence of extensive degenerative changes were found in the heart-muscle and also in the liver and kidneys.

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## NEUROLOGY.

IN CHARGE OF CHARLES W. BURR, M.D.,

Pathologist to the State Asylum for the Insane, Norristown; Visiting Physician to the Home for Incurables; Visiting Physician to St. Joseph's Hospital, Philadelphia, Pa.

**Seasonal Relations of Chorea and Rheumatism for a Period of Fifteen Years,—1876 to 1890 inclusive.** (*American Journal of the Medical Sciences*, September, 1892, p. 251.)—From a study of thirteen hundred and eighty-three separate attacks of chorea, treated at the Philadelphia Orthopædic Hospital and Infirmary for Nervous Diseases, and at the City Hospital, Boston, and the Massachusetts General Hospital, and six hundred and seventy-three separate attacks of acute inflammatory rheumatism,



treated at the Pennsylvania Hospital, Dr. Morris J. Lewis reaches the following conclusions: 1. The seasonal relationship of chorea and rheumatism is proved (most frequent in the spring, least frequent in the autumn). 2. There is a marked resemblance in form between the chorea and rheumatism tracings and the tracing representing the total amount of sickness present in the community per month. 3. This monthly variation in amount of sickness is not a cause of the fluctuation in the chorea and rheumatism tracings, but is itself probably due to the same influence. 4. While overstudy assuredly plays a most important rôle in predisposing children to chorea, the months of greatest study, and therefore presumably of the greatest depression of bodily vigor, do not coincide with or even precede with any regularity the months of greatest frequency of this disease. 5. It is more than probable that "weather" is one of the most important predisposing causes of both the diseases studied in this paper, although precisely which meteorological factor is the baneful one does not clearly appear. No one element of weather explains fully the fluctuations of these tracings for chorea, although in the barometer and storm statistics the relationship appears to be closer than to any other etiological factor or factors that have as yet been advanced. 6. Either this apparently close relationship must be acknowledged to have an important place in the etiology of these diseases, or else the resemblance must be considered to be purely accidental, which seems most unlikely from a study of the tables shown.

**A Case of Acromegaly, and Illustrations of two allied Conditions.** (*American Journal of the Medical Sciences*, June, 1892, p. 657.)—In this paper Dr. F. A. Packard reports a typical case of acromegaly, one of osteo-arthritis pneumique, and one of hypertrophy of the pituitary body without symptoms or signs of acromegaly. The first two cases still live, the third came to autopsy. The cases are not reported as in any way related to each other, but because the first two illustrate conditions that were at one time mistaken for each other, and because in many of the reported autopsies upon cases of acromegaly hypertrophy of the pituitary body has been found coincidentally.

**The Paralyzes which occur during and after Infectious Diseases in Children.** (*Journal of Mental and Nervous Diseases*, July, 1892.)—Dr. M. Imogene Bassette reports eighteen cases of paralysis following measles, scarlet fever, diphtheria, whooping-cough, mumps, and typhoid fever. The lesions present may be central, spinal, or neural, or may affect at the same time several portions of the nervous system. Any form may be classed as toxæmic,—i.e., as due to the direct or indirect action of poisonous organisms. In a large percentage the pathological process does not go on to true inflammation. Some cerebral cases are due to hemorrhage, embolism, etc., while a few are probably forms of true encephalitis. The spinal cases show either poliomyelitis or a diffuse myelitis. Local, diffused, or multiple

neuritis may occur alone or be accompanied by cerebral or spinal disease. The author tends to the view that acute infantile palsy is an infectious disease.

**Ataxic Paramyotonia and Thomsen's Disease.** (*Centralblatt f. Nervenheilkunde u. Psychiat.*, February, 1892, p. 41.) By Dr. Gowers.—The author reports the following case, which he regards as analogous to Thomsen's disease, and believes to be due to functional disturbance of the cordal gray matter, causing increased activity of the motor cells controlling muscular tonicity:

Well-nourished male, aged forty-one years. The extremities well developed and the muscles exceedingly hard on account of tonic extensor and flexor spasm. Patient rises slowly and stiffly. Spasm does not decrease during continued muscular movement, and opposes passive as well as active motion. Muscular weakness in legs and incoördination in hands. Muscle sense defective. Electrical reaction normal. Knee-jerk absent, possibly due to spasm. Touch sense lost on the palms and diminished on the soles. Pain sense diminished on palms. Temperature sense normal. Almost complete impotence. Sphincters normal. Mental condition good. Spasm continues during sleep. Condition has lasted one year and a half.

**Concerning a New Method of investigating the Tendon Reflexes, and the Latter Changes found in them among the Insane and Epileptics.** (Ueber eine neue Untersuchungsmethode der Sehnenreflexe und über die Veränderungen Letzterer bei Geisteskrankheiten und bei Epileptikern. *Neurolog. Centralbl.*, January 15, 1892, p. 34.) By Professor W. von Bechterew.—From studies made with an ingenious apparatus invented by himself, but which we have not space to describe, the author reaches the following conclusions:

In the insane the knee-jerks may be unequal, diminished, or absent; but the alteration is not constant in any given form of insanity. In epilepsy, also, various alterations are found. In many cases it is increased and unequal on the two sides. During a fit it is abolished. In some cases the tendon reflexes remain absent for a time after the fit. In others there is a temporary increase or change in the character of the reflexogram. On the average, the period of latency is longer after a fit than before.

**Metal-Turner's Paralysis.** (*American Journal of the Medical Sciences*, July, 1892, p. 61.)—Drs. G. L. Walton and C. F. Carter describe the above disorder as follows: Complete atrophy of the muscles of the hand supplied by the ulnar nerve, with very slight sensory disturbance (numbness) and slight dull pain and tenderness over the ulnar nerve, the pathological process being probably neurotic, though of a somewhat peculiar type. They report two cases. They regard it as improbable that the condition is due to the toxic effect of brass, but rather think the cause is either overstrain of



the interossei and lumbricalis, or neuritis set up by the muscular pressure exercised on the ulnar nerve when put upon the stretch by the flexion of the elbow. The atrophy is too marked to admit of its classification under occupation neurosis.

**An Unusual Patellar Tendon Reflex.** (Paradoxe Patellarsehnenreflex. *Centralbl. f. klin. Med.*, August 6, 1892, p. 641.)—Under the above title Professor Hermann Eichhorst describes a reflex he has found in a case of infantile palsy of five weeks' duration, in which the extensor cruris quadriceps remained palsied while the muscles of the leg could again be voluntarily moved. Percussion of the patella caused no contraction of the extensor cruris quadriceps, but was followed by several contractions of the tibialis anticus, extensor hallucis longus, and extensor digitorum communis longus. The contraction followed upon the slightest percussion. His explanation of the phenomenon is that the most direct reflex path between the patellar tendon and the extensor cruris quadriceps was interrupted by the poliomyelitic process, while the reflex impulse was shunted off to the neighboring centres for the muscles of the leg. Perhaps also the recovering motor cells of the anterior gray matter were more susceptible to excitation than under normal conditions.

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## PEDIATRICS.

IN CHARGE OF T. M. ROTCH, M.D.,

Assistant Professor of Diseases of Children, Harvard University; Visiting Physician to the Children's Hospital, Boston.

ASSISTED BY

E. M. BUCKINGHAM, M.D.,

Instructor in Diseases of Children, Harvard University; Visiting Physician to the Children's Hospital, Boston.

**Two Cases of Mediastino-Pericarditis in Children.** (*Medical Chronicle*, London, 1891, xv. p. 145; *Archives of Pediatrics*, June, 1892, p. 467.) By Ashby Henry.

In most cases the first significant symptom is ascites. The child seems otherwise well. Examinations of chest and urine are negative. Possibly some œdema of face or distended veins in the neck. Sooner or later an enlarged liver is felt with perhaps an irregular or hard edge.

Some of the cases are very chronic, are relieved by tapping, and may go on for a year or two. Sooner or later a more or less general œdema occurs. The feet and legs are sure to be œdematous before long. In other cases the course is more acute, especially if tubercular. Probably, also, the younger the patient the shorter the course is likely to be.

Extensive matting of the edges of the lungs in the anterior mediastinum, or a pericardium adherent to surrounding structures, will certainly increase

the area of dulness in the front of the chest, but if the lungs are not involved and overlap the heart and bronchial glands, there may be no such increase. Much stress has been laid on weakening of the pulse during deep inspiration, and in some reported cases the pulse has actually disappeared during inspiration. In neither of the author's cases was this true, but one was too young and too ill for observation as to this point.

Then follows the autopsy of his two cases.

**Secondary Fever in Scarlatina without Complications.** (*Revue de Méd.*, 1892, No. 12, p. 286; *Revue mensuelle des Maladies de l'Enfance*, June, 1892, p. 298.) By L. Bouverie.

Generally when the temperature rises during or after its fall in scarlet fever, it is due to the occurrence of certain well-known complications. It may, however, rise to a great height with corresponding nervous symptoms without it being possible to assign any complication as a cause for the rise. Three cases have been studied by Thomas and by Gumprecht. Gumprecht believes them due to a secondary affection of the blood, due to streptococci, which proceed from the glands, but which produce neither diphtheria nor profound inflammation. Bouverie reports three cases in adults, all very similar, and having the following sequence of symptoms, normal scarlatina, regular defervescence. On the eighth or ninth day a sudden rise of temperature to 40° C., and on the next day to 42°, without it being possible to find the least localization. This high temperature, 104° F., was accompanied by headache, delirium, and coma. The cases were treated by cold baths after the manner of Brand, and in two, four, or five days a regular and complete defervescence was resumed. The author does not admit for these cases the explanation of Gumprecht. He thinks that there was probably excitement of the nerve-centres that preside over calorification, which excitement is due in turn to soluble poisons produced by the microbe of scarlet fever, and those of the secondary affection.

**Essay on Bronchitis in Infants.** (*Revue mensuelle des Maladies de l'Enfance*, April, 1892, p. 171.) By Dr. A. B. Marfan.

Among the causes of acute bronchitis this writer recognizes dentition as probably one. He supposes it to act through a disturbance of the vasomotor nerves, and he assigns as reason for his belief, the frequent coincidence of the two conditions. Levestre has shown the frequent coincidence of acute bronchitis and intestinal affections, and believes such bronchitis to be secondary. It might be supposed due to auto-intoxication, but Lesage has made observations tending to show that it is directly due to the "bacterium coli virulent." The arthritic diathesis markedly predisposes. Fat, eczematous children suffer from the least chilling in sudden changes of temperature. Any cause in adults is cause in children as well. Cold being the more common one, some of the infectious diseases are accompanied by a secondary bronchitis.



He quotes from Espine and Picot a carefully-drawn picture of light bronchitis. In some cases, however, especially in early infancy, the disease may be grave. It begins with a violent, fatiguing, and painful cough, somewhat spasmodic. There is intense fever, rising at night above  $38^{\circ}\text{C}$ ., with a hot dry skin, accelerated respiration, a little dyspnœa, eyes red and moist. Nurslings may refuse the breast. Abundant sonorous and sibilant with perhaps occasional subcrepitant râles. The respiratory murmur dry. This degree of bronchitis is often accompanied by atelectasis, especially with rhachitis, or it may extend to the lungs, and the child die of suffocation, catarrh, or broncho-pneumonia. There are sometimes grave cerebral symptoms, restlessness, prostration, convulsions, feeble pulse, and death, or more often a favorable termination after one to three weeks. Gastro-enteritis may result from the swallowing of sputa. In grave cases vomiting and diarrhœa are the rule.

In cachectic children the course is more subacute. Cadet de Gassecourt has insisted on congestive phenomena, which may occur in even the mildest cases. Suddenly the child has extreme dyspnœa, temperature  $39^{\circ}\text{C}$ . to  $40^{\circ}\text{C}$ . At some point, probably the base, very slight dulness, vesicular murmur obscured, and some crepitant râles. All these symptoms disappear in one or two days, and should lead one to be careful in making a diagnosis of broncho-pneumonia too early. This last is, however, generally more insidious in its approach. Acute bronchitis is at first distinguished from whooping-cough in infants with difficulty. As sublingual ulceration may occur in either, it is not a diagnostic mark.

Nocturnal cough of infants is not well understood, but should probably be classed among the neuroses. It is most common in winter and spring. After two or three hours of sleep, the child becomes restless, tosses, and cries. During a few hours he has paroxysms analogous to those of whooping-cough, but with less suffocation, and without the whoop. These cases are without physical signs. Cough from enlarged tracheal or bronchitic glands is dry and hoarse. It often comes in paroxysms, but is without the other symptoms of whooping-cough,—*i.e.*, pseudo-asthma, intermittent aphonia, spasm of the glottis, and the long-drawn inspiration and vomiting. The disease is often accompanied by bronchitis.

It is very difficult to distinguish primary capillary bronchitis from bronchial asthma or broncho-pneumonia. It is insufficiently described by authors, but reference is made to the works of Trousseau and Politzer. The author follows the description of Guinon. It sometimes occurs very early, at two or three years, or even eighteen months. In making the diagnosis, the absence of a family history of asthma is of importance. The onset is sudden, with frequent painful spasmodic cough, and, almost as soon, dyspnœa. Fever is constant from the beginning. It is very violent, the temperature reaching  $39^{\circ}\text{C}$ ., the pulse 160 to 170 in a child of three years, the face red, the eyes congested and moist; the alæ nasæ in motion; respiration always accelerated, contrary to what has been observed in adults;

expiration, at the beginning, prolonged, laborious, and noisy, but after some hours "very violent." In other cases, respiration is uniformly accelerated for two or three days, although it is deeper than in the dyspnœa of ordinary acute disease of the air-passages. Sordes exist from an early period; thirst is severe, and vomiting frequent.

Auscultation at the first presents a similarity to that of asthma. Quickly, in a few hours, the chest becomes filled with râles of all sorts, but especially with fine subcrepitant râles, of which the abundance and fineness suggest a general capillary bronchitis. Add retraction between the ribs, intense fever, prostration of the child, who lies inert on his bed, "and one comprehends that this idea is legitimate, and that Trousseau was in error." After a few days, however, of this condition, fever and dyspœna lessen, râles become fewer and larger, appetite reappears, and the child has only the symptoms of ordinary bronchitis, with slight exacerbation at night. Convalescence is often interrupted by dyspnœa, fever, malaise, and noisy respiration at some point in the chest, due to congestion. One must always think of the possible development of tuberculosis.

Acute bronchitis of children is commonly benign. Nevertheless, it is not to be forgotten that it may lead to death by means of capillary bronchitis, or through cerebral complication. It ought to be treated with great care, as one cannot foresee what it may evolve. Among other means of treatment, the author insists on confinement to a room with a warm temperature.

The article concludes with an account of chronic bronchitis, for which we have no room.

**Experimental Studies on the Etiology of Melæna in the New-Born.** (*Revue mensuelle des Maladies de l'Enfance*, July, 1892, p. 341; *Archiv f. Kinderheilk.*, 1892, vol. xiv. p. 165.) By J. Pomorski.

The author had a case of two days' duration after forceps delivery. Autopsy showed general internal congestion, especially of the lungs, an ulcer of the stomach, and several hemorrhages in the brain. In the original German, but not in the French review, is a *résumé* of the theories of this affection. He reports the fact stated by Brown-Séquard, Schiff, Ebstein, and others, that certain lesions of the brain can give rise to congestion of internal organs and ulceration of the stomach. He reports his own experiments on three rabbits, showing that certain cerebral injuries can cause these same lesions, including hemorrhages and grave ulceration.



## SURGERY.

IN CHARGE OF B. FARQUHAR CURTIS, M.D.,  
Surgeon to St. Luke's Hospital and to the New York Cancer Hospital.

Stricture of Small Intestine caused by Strangulated-Hernia Resection. (Ueber eine eigenartige Form von narbiger Darmstenose nach Brucheinklemmung. *Beiträge zur klin. Chirurgie*, ix., 1892, p. 187.) By Professor Dr. C. Garré.

Garré reports a case from Bruns's clinic. A man, twenty-seven years of age, with strangulated hernia, was operated upon October 16, 1890, and a properitoneal hernia found containing a loop of small intestine twenty centimetres long, discolored but viable. The patient made a good recovery, interrupted only by a diarrhœa beginning on the third day after the operation and lasting one week. Within a month symptoms of intestinal obstruction developed, and December 19 a laparotomy was performed, and forty centimetres of small intestine found so adherent and bent that its resection was necessary. A circular suture of the ends was made and the patient recovered. Examination showed that the upper twelve centimetres were enormously hypertrophied, the lower fifteen centimetres were normal, while the remaining central part contained seven centimetres in which the gut was altered to a hard "plug," two or three centimetres thick, allowing only a probe to pass in its lumen. The canal had no mucous membrane, but an ulcerated surface with partly undermined edges, limited sharply above and below by a line going around the bowel. The walls of the strictured portion were from one to two centimetres thick, with cicatricial tissue in abundance.

Garré supposes that the mucous membrane sloughed over this space, and the succeeding ulceration caused enough cicatricial formation to result in narrowing the canal. He points out that the only cases of stricture after strangulated hernia on record are those in which the intestine appeared as if a string had been tied around it, the stricture being limited to a very narrow zone, and that these cases are admitted to have been due to a cicatricial process starting in the serous layer, just the opposite of his case.

Localized Distention of the Bowel in Intestinal Obstruction. (Ein experimenteller Beitrag zur Frage des localen Meteorismus bei Darmocclusion. *Deutsche Zeitschr. f. Chirurgie*, xxxiii., 1892, p. 214.) By Kader.

Kader has studied by very numerous experiments upon animals the causes and varieties of distention of the bowel noticed in intestinal obstruction, and reaches the following conclusions: The distention is due to interference with the circulation of the wall of the intestine or to obstruction and decomposition of the contents of the gut. In the first case the bowel wall becomes thickened, infiltrated with blood, paralyzed, and finally gan-

grenous, while the intestine is filled with bloody serum and gas, distending it to two or three times its original diameter. In the second case the bowel wall is scarcely altered excepting some paralysis coming on after several days' duration of the obstruction, and, in chronic cases, the compensatory hypertrophy of the muscular coat, while the distention is slight, less than twice the original diameter. Peritonitis, however, will cause the first-described changes to occur even when the circulation of the bowel is not directly involved.

If, therefore, the circulation of a loop of bowel is affected by the same cause which obstructs its lumen, we will have a localized distention and threatening gangrene of the wall, and this will occur so early that it can often be recognized before general distention is present.

**Surgery of the Gall-Bladder and Ducts.** (Des opérations chirurgicales sur les voies biliaires. *Gaz. des hôpitaux*, 1892, 471.) By F. Terrier.

In opening a discussion on the surgery of the gall-bladder and ducts, at the recent French Congress of Surgeons, Terrier gave a masterly *résumé* of the subject. We can only extract a few points. He states that cholecystotomy in two acts has been given up for the shorter method of opening the gall-bladder at once, without waiting for adhesions to form, but that some surgeons still secure the bladder to the abdominal wall before incising it. He prefers in every case of operation upon the gall-bladder to use the vertical incision directly over the most prominent part, the angular and T-incisions being reserved for the deep operations upon the ducts. Depending in other respects upon the statistics of Courvoisier, which are well known, he quotes for cholecystectomy the figures of Calot (in an inaugural thesis), giving eighty-five or ninety cases with a mortality of less than twenty per cent. In fifteen of these cases the patients were observed one year or more after the operation and were in good health, and in the discussion which followed Terrier added seven cases and Michaux two, which had been observed from one to three years after, and, with one exception, were in good condition, proving that the danger of a recurrence claimed by some opponents of the method is certainly not great. The exception was a case of enormous distention with a calculus in the neck, which was left in place, not all of the bladder having been removed, and death ensued one year later, with great enlargement of the liver; but this should not be counted as an ordinary cholecystectomy. Terrier holds that this method is indicated in certain cases, contra-indicated when the common duct is obliterated, and the difficulty of determining the perviousness of the latter is one objection to the operation. The danger also is certainly greater than that of cholecystotomy.

In cholecystenterostomy the duodenum should be selected whenever possible, and the large intestine especially avoided. It should be done at one sitting. Terrier advises a method of his own, securing the bladder and the gut together with a ring of serous sutures without opening either until all



the stitches have been tied but one, then incising both through this interval, introducing a short piece of drainage-tube into the openings, and then closing the last suture, leaving the tube to fall into the intestine. This method appears unnecessarily complicated, and there must be some danger of accidentally dividing the sutures when the incision is made and also of making an insufficient opening.

**Gunshot Wound of the Liver; Laparotomy; Recovery.** (Schusswunde der Leber; Laparotomie; Heilung. *Wiener klin. Wochenschr.*, 1892, 267.) By Dr. A. Brenner.

Brenner reports the case of a boy, fourteen years of age, who received a charge of bird-shot from a shot-gun at a distance of about one foot, the wound being situated in the linea alba about one inch below the ensiform cartilage, and presenting a round opening four millimetres in diameter, with its edges blackened by the powder. At first the symptoms were slight, but on the second day there was a chill, and the temperature rose to 104° F. Laparotomy was performed (fragments of cloth being found in the abdominal wound), and when the peritoneum was opened blood with a fecal odor escaped. A funnel-shaped wound of the liver was found containing many shot and some pieces of cloth, and extending backward in the right lobe of the liver the full length of the finger. The other side of the liver had not been penetrated. Drainage and iodoform gauze tampon. Rapid recovery. The pus discharged during the granulation of the wound was yellowish in color. The difference between the punctured wound of the abdominal wall and the widely-gaping cavity in the liver was very remarkable.

**The Treatment of Acute Intestinal Obstruction.** (Ueber Behandlung des acuten Darmverschlusses. *Archiv f. klin. Chirurgie*, xliiii., Hefte 3 and 4, p. 298.) By Dr. L. Rehn.

A surgeon who can report thirteen cases of laparotomy for acute intestinal obstruction with ten recoveries, like Rehn, certainly deserves a careful hearing. Yet there is nothing very definite in his methods or theories which differs much from those of others. He operates early (discountenancing opium and washing out the stomach), uses a median and small incision, trying to keep the small intestines within the abdomen, if that can be done without too great difficulty, and does not believe in enterostomy, except as a secondary operation after laparotomy has enabled one to remove the cause of strangulation. He lays great weight, as do all good authorities, on the distinction between the cases with and without strangulation of the gut, and nearly all of his cases are of the latter variety. In diagnosis he gives due consideration to the two signs of Von Wahl, the distention and fixation of a single loop in the abdomen, and adds some observations of his own, indicating that auscultation of the abdomen is likely to prove useful in determining the situation and severity of the occlusion. As is well known, peristaltic movements can rarely be seen in acute obstruction, but

the ear can distinguish between normal and increased peristalsis, can trace the sound thus made, and if it always disappears at one point in the belly it can fairly be assumed that the obstruction is near that place. If a previously audible peristalsis ceases during the progress of a case it is a sign of evil import, indicating that paralysis of the gut has taken place, and demanding immediate operation. Rehn's cases include an adherent Meckel's diverticulum, an adherent vermiform appendix, volvulus (two cases), volvulus and band, hernia into foramen of Winslow, extra-uterine pregnancy, intraperitoneal abscesses (two cases), and bands (two cases). The three deaths were caused by exhaustion, by a second undiscovered obstruction, and by intestinal paralysis increased by opium given by mistake after the operation.

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## GENITO-URINARY SURGERY.

IN CHARGE OF WILLIAM K. OTIS, M.D.,

New York.

Influence of Asepsis and Antisepsis on the Prophylaxis of Urethral as distinguished from Urinary Fever. (*Journal of Cutaneous and Genito-Urinary Diseases*, September, 1892.) By John P. Bryson, M.D., St. Louis.

All questions pertaining to the etiology and prophylaxis of urinary fever are so important and of so great interest to the genito-urinary surgeon that this article of Dr. Bryson commands especial attention. From a practical stand-point he obtains satisfactory immunity from urethral fever by pursuing the following plan:

1. When it is possible, some one of the urinary antiseptics is administered by the mouth for twenty-four to forty-eight hours before anything is done which might excite urethral fever. He does not lay great stress on this, the most that can come of it being a diminution of the pyuria in certain cystitic or ureteritic conditions. Reliance cannot be placed on it to considerably diminish the fever. It is more efficient for disinfection of the upper and middle portions of the urinary passages than for the urethra, since the drugs, in weak solution, remain longer in contact with these membranes. Boric acid (first suggested by Dr. E. R. Palmer for this purpose) appears to be more efficient than the benzoates or salicylates. Salol, highly spoken of by White and others, has had no effect whatever in his hands.

2. All instruments are rendered aseptic by boiling in soda solution.

3. Borated glycerin alone is used as a lubricant. All fats, oils, and the more common vaseline are banished entirely. The reasons are obvious.

With its affinity for water, glycerin can be easily and completely washed from the rough surfaces and slots of all instruments. It remains clean and must be kept in a closed vessel, else it quickly becomes too thin



for a lubricant by absorbing moisture. It is a clear fluid, which permits infection to be noted in its opacity, when it can be discarded.

When brought in contact with the urethral mucous membrane, its affinity for water causes an outpouring of fluid which flushes the mucosa even in its depths, promoting absorption at the same time. On the other hand, it is practically impossible to keep instruments clean when vaseline and the like are used as lubricants, and when these substances become mingled with blood, it is difficult to wash them away even with soap and hot water; they dry in the slot of a urethrotome or in the pocket behind the eye of a catheter, and become gummy and almost impossible to remove.

4. Before any instrumentation the foreskin is retracted and the glans and prepuce are thoroughly washed with the boro-salicylic acid solution of Thiersch.

5. The nozzle of an ordinary rubber injection-bulb filled with the same solution is then introduced into the meatus, the slack caught up with the thumb and forefinger, and the anterior urethra filled and allowed to empty itself several times.

6. With the meatus firmly compressed around the nozzle an attempt is now made to wash the posterior urethra by overfilling the anterior part and maintaining the pressure long enough to overcome the compressor. Failing in this, an Ultsmann's syringe-point is introduced fully within the grasp of the compressor, and the posterior portion of the duct washed backward into the bladder.

To sum up, an attempt is made to practise urethral asepsis by preventing the introduction of septic material into the canal and antisepsis by washing both the anterior and posterior parts of the duct clean of its own secretions.

In regard to the etiology, Dr. Bryson is at the present time engaged in a series of laboratory experiments which, as yet, are not sufficiently advanced for publication; he believes, however, that the clinical evidence at hand points strongly to the following conclusions:

1. Urethral fever is clinically distinguished from the other forms of constitutional disturbances following instrumentation of the uro-genital passages or accompanying the diseases of this system.

2. The causative agent is a toxine.

3. The pathogenic agent is generated in and by the urethral mucous membrane.

4. The nervous and circulatory changes constituting shock, while they may precipitate an outbreak, are incapable of producing the disease.

5. We may exclude the urine as an essentially necessary factor.

6. The anatomical-etiological field for this disease is the urethra.

7. The most successful prophylaxis is that form of urethral asepsis and antisepsis which will clear the duct of its secretions, and remove or render innocuous the essential etiological factor before any instrumentation whatever is attempted.

Concerning the Excision of Indurated Chancre. (De l'excision du Chancre induré. *Gazette des Hôpitaux*, June 2, 1892.) By Dr. Brandès.

This author concludes, after a careful review of the evidence on the subject, that the excision of the initial lesion with the object of abating syphilis has given very unsatisfactory results, in the great majority of cases the excision being followed by the appearance of secondary and tertiary manifestations. In those cases where excision was apparently successful, it is probable that they were not always cases of true syphilitic infection, as it is extremely difficult, not to say impossible, always to diagnose the initial lesion of syphilis upon its first appearance.

To make a certain diagnosis Professor Fournier gives the following conditions:

- (a) Examination of the suspected female.
- (b) Classical duration of the incubation.
- (c) A careful and intelligent examination, reviewing all the symptoms.
- (d) A prolonged observation of the patient, without the exhibition of either mercury or the iodide of potassium.

The early excision of true hard chancre has given as yet nothing but negative results. In one case the excision was performed ten hours after the appearance of the sore. One month after, a roseola appeared, followed by mucous patches, falling of the hair, headache, etc. The same thing happened in a case operated on by Mauriac at the end of fifty-six hours, and of Rosori at the end of several hours.

The investigations of Dr. Brandès would go to show that the excision of the sore does not tend to attenuate or diminish the severity of the disease; he considers, however, that excision is a most valuable method of local treatment, changing an infectious ulcer into a simple wound, usually healing in from twenty-four to thirty-six hours, the spontaneous cure of hard chancre demanding at the least from four to six weeks. The excision of an indurated chancre presents the following advantages:

- (a) It reduces the duration of the chancre from four weeks, at the least, to two or three days.
- (b) It transforms a source of infection and contagion into a simple wound, the only inconvenience being, perhaps, the consecutive induration of the cicatrix.

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## ORTHOPÆDICS.

IN CHARGE OF REGINALD H. SAYRE, M.D.,

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Temporary Resection of Vertebrae. (De la Resection temporaire des Vertèbres. *Annales d'Orthopédie*, July 1, 1892.)

Urban, of Leipsic, at the German Surgical Congress, said that in certain cases of paralysis from compression of the spinal cord, the result either



of fracture or of a spondylitis with caving in of the vertebral bodies, he had tried the temporary resection of the posterior part of a certain number of vertebræ. He makes a vertical incision on each side of the spinous processes down to the transverse processes, then cuts through the laminae of the vertebræ he desires to remove, leaving the severed bones attached to the soft parts. This, cut across, gives a rectangular flap which he turns back, removes the cause of compression, replacing the wedge of bone, and suturing it. He has tried this method several times with success. In the case of a young man with complete paraplegia following a fracture of the spine six months previous, there was marked improvement in six weeks after the operation, and finally a complete cure. In a woman completely paralyzed in the lower extremities after a fracture of the lumbar spine there was slight return of sensibility twenty-four hours after operation. In two cases of paralysis depending on spondylitis he has also had success by operation. [The method seems to be similar to that proposed by Dawbarn some years ago, and by Burrell, of Boston, but which has not been very generally adopted as far as I know.—REV.]

**Contraction of the Muscles of Mastication; Massage; Cure.** (*Annales d'Orthopédie*, August 1, 1892.) By Paul Archambaud, M.D.

A lady had the lower left wisdom tooth pulled on the 19th of June, the dentist breaking off one of the prongs and leaving it in the jaw. The next day the face was much swollen, and the jaws could be separated with difficulty. The following day the jaws were tightly closed and the patient could only be fed by liquids introduced through an opening between two of her teeth. Great pain was present. This condition lasted till June 26, when massage was tried. This was very painful at first, but later on could be tolerated easily. In twenty minutes the jaws could be opened one centimetre, and the patient passed a good night. The next day the jaws had closed again, but under massage relaxed once more. Massage was kept up every day till July 3, when the patient seemed to be well, having power to open the mouth wide.

**Tuberculosis of Bones and Joints.** (*Annales d'Orthopédie*, July 1, 1892.)

In the discussion on this subject in the German Surgical Congress this year, the general opinion was the same that has always been held by American surgeons, namely, that conservative and protective methods gave the best results, and with hardly an exception the prominent German surgeons have abandoned the immediate excision of tubercular joints which they at one time advocated so warmly.

König says, "Purely local tuberculosis is rare. In my experience it exists in hardly a fifth of the cases. When a surgeon speaks of radical cure of tuberculosis he only talks of the cure of those foci which are accessible to our interference and not a cure of the tubercular dyscrasia.

"Since the advent of antiseptic methods surgeons have been led too far into the operative field. Hence the practice of early resections. The results were good from the point of eradicating the tuberculosis, but how about the function of the resected joint? There is no use discussing this point. Besides, by early operation a great number of joints were sacrificed that could have been saved by non-operative methods, and, finally, even with these immediate operations relapses were frequent.

"In the Göttingen clinic I have treated during the past sixteen years about four hundred and fifty cases of hip-joint disease. Now, fifty per cent. of these cases got well with mechanical and hygienic treatment alone. A few only died ultimately. On the other hand, I have operated on two hundred and fifty cases which gave me a very high mortality. Operative interference is required in only about twenty per cent. of cases."

The Treatment of Tuberculosis by Cinnamic Acid. (*Annales d'Orthopédie*, August 1, 1892.)

Since 1882, Landerer, of Leipsic, has been following out a series of experimental and clinical researches which show that in cinnamic acid we have an antitubercular agent of the first class. These researches were prompted by noticing the antitubercular power of balsam of Peru. In his trials to find out the active antitubercular agent in balsam of Peru he experimented with various benzoic preparations, and found their efficacy was in direct proportion to their richness in cinnamic acid. He, therefore, continued his experiments with the latter.

The acid is used in the form of an emulsion, as follows:

Cinnamic acid,	5 parts.
Almond oil,	10 "
Yellow of one egg.	
Solution of chloride of sodium,	.7 per cent.,
q. s. to make 100 parts.	

In treating lupus Landerer uses an alcoholic solution of cinnamic acid with cocaine, thus:

Cinnamic acid,	1 part.
Cocaine hydrochlorate,	1 "
Alcohol,	20 parts.

Injections of this solution are made in surgical tuberculosis, one or two drops being injected into the nodules till ten drops have been injected at one time. This is repeated in a week.

The emulsion must be alkaline when used, and is, therefore, mixed with twenty-five per cent. liquor potassæ, only so much being rendered alkaline as is to be used at that time. The acid emulsion will keep for several days in a cold place. It cannot be sterilized. He has treated forty-five cases of surgical tuberculosis, obtaining cures, 31 = 68 per cent.; improvement, 7 = 15.5 per cent.; no improvement, 1 = 2.2 per cent.; cases still under treat-



ment, 4 = 8 per cent.; deaths, 2 = 4.8 per cent. In one case the fatal termination was due to other causes not tubercular, and Landerer says that five of the cases under treatment are getting well, which would bring the cures to 80 per cent.

The object of treatment is to cause the cinnamic acid to penetrate in sufficient quantity all the places infiltrated by tubercle, and thus cause the resolution of the tubercular inflammation or transform it into cicatricial tissue.

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## OBSTETRICS AND GYNÆCOLOGY.

IN CHARGE OF JOHN M. KEATING, M.D., LL.D.,

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**Hysteromyomectomy, with a Report of Four Cases.** (*Johns Hopkins Hospital Bulletin*, No. 23, June, 1892.) By Hunter Robb, M.D.

*Method.*—After opening the peritoneal cavity, the body of the uterus, the cervix, and the broad ligaments are carefully examined, and the situation studied. The myomatous uterus is then grasped and lifted out of the abdominal cavity and wrapped in sterilized gauze, over which a sterilized salt solution, at a temperature of 112° F., is poured from time to time. The broad ligaments on either side are divided close to the sides of the uterus, if possible, as far down as the utero-cervical juncture. This is accomplished either by passing a double row of ligatures of silk through the broad ligament or by compressing it with a pair of long-nosed artery forceps on the side close to the uterus, and passing and tying a series of ligatures on the pelvic side. The broad ligament is cut through between these constricted portions, and the uterus is thus separated from its lateral attachments.

The tubes and ovaries are also removed separately, or with the uterus. Where the cervix joins the body of the uterus, a transfixion-needle, threaded with double ligature, is passed through the middle of the cervix, just as an ovarian pedicle is transfixed.

This ligature is then tied both ways beneath the tubes and ovaries and the diseased mass. One of the ligatures is brought around the pedicle again to make the tie more secure. This should absolutely cut off all the active blood-supply. The constricted mass, for a distance of an inch to an inch and a half above the ligature, can then be rapidly and safely excised. It is cut off so that it leaves a cupped cavity surrounded by an abundance of peritoneum.

Redundant tissue may be trimmed away afterwards. The position of the cervical canal is next noted, and the canal thoroughly burned out with a Paquelin cautery, by plunging the fine point well into it, in order to prevent

any possible infection from this source. Then a circular or rectangular ligature of silk or catgut is passed in and out of the cervical tissue and tied, closing the cervical canal, and another suture again outside of this, finally completely closing the canal. Interrupted sutures of silk or catgut now unite the peritoneal surfaces of the opposite sides of the pedicle so as to invert the top of the pedicle and bring the peritoneal surfaces in apposition.

The toilet of the peritoneal cavity is completed by pouring in one or two quarts of a sterilized salt solution, at a temperature of 112° F., the cavity sponged dry, the pedicle dropped, and the abdomen closed without a drainage-tube. *The ligatures must be carefully applied and sufficient stump left above them.*

**Thiol in Metritis and Perimetritis.** (*Revue de Thérapeutique; Archives of Gynæcology*, etc., July, 1892.) By Dr. Gottschalk.

It has the advantage over ichthyol in being without odor. It has the same effect as the tincture of iodine.

**Euphorin.** (*Rif. Med.*, December 15, 1891; *Archives of Gynæcology*, etc., July, 1892.) By L. M. Bossi, M.D.

The author has employed it in the form of the powder, and believes it acts more efficaciously and more rapidly than any other substance hitherto in use, not excepting iodoform.

**Large Rectal Injections of Water as an Aid to the Reduction of Retro-Displacements of the Uterus.** (*Denver Medical Times*, July, 1892.) By J. M. Keating, M.D.

The author in this paper, read before the El Paso County Medical Society, at Colorado Springs, calls attention to the difficulty in gradually breaking up adhesions from utero-rectal attachments, and advises the use, by the patient, of large hot-water injections into the rectum while in the knee-chest position, with a fountain syringe, before retiring at night.

The Thure-Brandt treatment by massage will undoubtedly accomplish this end, but for many cases the above will be preferable. The author also insists upon a rectal digital examination in all cases of constipation.

**Vulvo-Vaginitis in Children.** (*Maryland Medical Journal*, June, 1892.) By J. Whitridge Williams.

This reliable investigator has written an interesting paper based upon the study of leucorrhœa in eight cases. He reviews all the work that has been previously done, showing the contagious character of vulvo-vaginitis, and then its associations with the gonococcus, and the probability of the gonorrhœal origin of the disease. Nevertheless, he calls attention to the fact that Bumm has shown that diplococci of seven different forms are found in the vagina, and that staphylococci may invade the leucocytes and give rise to the appearance of the gonococcus. In 1886, Roux pointed out this



fact, and stated that gonococci are not stained by Gram's method, while all other diplococci are, and that to be certain one has first to stain the specimen by Gram's method, and then with some other stain, as methylene blue or Bismarck brown; the other diplococci will stain deep violet and the gonococci light blue or brown. But still later, Neisser states that to prove the presence of the gonococcus we must note the following:

1. Typical arrangement of the diplococci in the leucocytes (arranged in little groups of three or four).
2. Inability to stain by Gram's method.
3. Inability to cultivate the organisms on the usual culture media,—agar-agar and gelatin.

Whitridge Williams states that, as far as he can learn, no one has fulfilled these demands, so it cannot be said to be proved that vulvo-vaginitis of children is of gonorrhœal origin, but the probability is so strong as almost to amount to certainty.

*Treatment.*—In all cases the genitals should be frequently cleansed with Castile soap and warm water, and then dusted with boracic acid. Suppositories of iodoform and cocoa butter should be introduced into the vagina, and an application of a solution of thirty grains to the ounce of nitrate of silver to the vagina twice a week by means of a small sound covered with absorbent cotton. If the parts are very sensitive it is well to apply a little cocaine beforehand.

[In severe cases or where the contagious nature of the complaint is manifest, the treatment by the above plan should be very thorough, and we believe that the child should be anæsthetized to do it properly.—REV.]

Report of Eight Cases of Severe Dysmenorrhœa, cured by the Intra-uterine Application of the Negative Pole of the Galvanic Current. (*The American Journal of Obstetrics*, August, 1892.) By A. Lapthorn Smith, M.D.

These cases of dysmenorrhœa, the author states, were accompanied by endometritis, and he confirms the opinion that nine-tenths of the cases of dysmenorrhœa have endometritis, either as a cause or as a remarkable coincidence. The treatment by negative galvanism does not require any but mild currents which can be barely felt and which cause no pain. The author states that, after a careful bimanual examination for the purpose of excluding pregnancy and for ascertaining the condition and position of the pelvic organs, the vagina is disinfected by a douche. The ordinary Simpson sound, of a large size, is then bent to the ascertained curve of the uterine canal, passed through the former, insulated with a clean piece of rubber tubing to within two and a half inches of its extremity, or less, if we have reason to think the uterus is undeveloped. In the handle of the sound a hole has been bored just large enough to hold the tip of the conducting cord from the negative pole or last zinc of the battery. The sound is then guided into the os uteri on the tip of the finger until it meets with some

obstruction, when a current strength of ten milliamperes is turned on. In a minute or two the obstruction will seem to melt away, and the sound will glide into the cavity of the uterus. The current is now gradually raised until the patient says she can feel it in the uterus,—generally between twenty to fifty milliamperes,—being at once lowered upon the slightest complaint of pain. At the end of five minutes the current is gradually turned off, when the sound will be found to drop out of its own accord almost, and very much easier than when it entered. A boro-glyceride tampon may be applied for the sake of precaution. The positive pole of the battery is attached to the ordinary clay abdominal electrode.

Constipation a Factor in Uterine Disorders. (*Denver Medical Times*, August, 1892.) By J. M. Keating, M.D.

The author, after reporting several cases, dwells at length upon the importance of a rectal digital examination before having recourse to laxatives in the treatment of women, owing to the fact that retro-displacements seem to be very much more common in virgins than one would think. He also advises the use, where such displacements are found and where pelvic adhesions have taken place which prevent their restoration, of rectal injections of very large amounts of hot water, to act by bulk as well as by heat. It is advisable that these injections should be taken in the knee-chest position.

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## OPHTHALMOLOGY AND OTOTOLOGY.

IN CHARGE OF J. E. HARPER, A.M., M.D.,

Chicago, Illinois.

Concerning Muscular Advancement.—In a paper read before the New York State Medical Society (*American Journal of Ophthalmology*, May, 1892), Dr. Lucien Howe advocates, in muscular advancement, the division of the opposing muscle if the strabismus exceeds two lines; the clamp used for holding the muscle to be advanced is so small and light it can be left in place; the introduction of the stitches so as to form a B-shaped loop, the muscle being then drawn forward by two stitches running from its upper and lower borders to the corresponding loops of the "B." Then by tying the corresponding ends of the stitches, above and below, the muscle is brought snugly into position. The operation does not give uniformly good results.

Meeting of the American Medical Association, Ophthalmological Section.—At the meeting of the American Medical Association, Ophthalmological Section (*American Journal of Ophthalmology*), Dr. Dudley S. Reynolds read a paper advocating the designation of lenses by their angles of refraction in degrees and minutes instead of by the inch or metric system.



Dr. H. V. Wurdemann, in a paper on normal corneal astigmatism, held that the ophthalmometer was an essential instrument to the oculist. He found all corneæ astigmatic in their principal and oblique meridians at five degrees intervals. If five degrees on either side of the visual centre are free from astigmatism, the eye may be called non-astigmatic. In three hundred eyes, sixty-three of which were emmetropic, fifty-two simple hyperopic, eight simple myopic, and one hundred and seventy-seven astigmatic, ninety-three per cent. had corneal astigmatism appreciable by the ophthalmometer.

Dr. Edward Jackson read a paper on manifest and latent hyperopia based on a study of two hundred and fourteen cases. He found the amount of hyperopia depended largely on the method of testing for it, and it becomes more common as the patient grows older. Latent hyperopia is exceptional, inconstant, and abnormal. A mydriatic is needed as frequently at forty-five as at fifteen years.

Dr. A. E. Price read a paper dwelling on the importance of detecting and correcting slight degrees of hyperphoria when reflex troubles were present.

Dr. George T. Stevens reported the results of his observations on the influence of the ocular muscles on facial expression.

**The Axis of Astigmatism.** (*New York Medical Journal*, June 25, 1892.)—Dr. John H. Claiborne summarizes the results of his studies of the axis of astigmatism as follows:

1. *In Simple Hyperopic Astigmatism in a Single Eye.*—Positions of preference are  $90^\circ$ ,  $105^\circ$ ,  $135^\circ$ ,  $75^\circ$ ,  $45^\circ$ . Rarely horizontal.

2. *In Simple Myopic Astigmatism in a Single Eye.*—The axis in the large majority of cases is horizontal. The deviation is likely to be  $15^\circ$  from the horizontal on one side or the other,—i.e., the axis will be  $165^\circ$  or  $15^\circ$ . Its realm includes  $30^\circ$ , or one-third of one quarter of the circle, and the axes included in this realm— $180^\circ$ ,  $15^\circ$ ,  $165^\circ$ —are the axes of preference. The axis  $90^\circ$  occurs exceptionally.

The statements made with regard to hyperopic obtain in compound hyperopic astigmatism, and the axes of compound myopia are the axes of simple astigmatism. The rules in regard to hyperopic and myopic meridians hold when mixed astigmatism occurs.

**Pilocarpine in Labyrinthine Deafness.** (*British Medical Journal*, April 2, 1891.)—Field states that in selected cases good results are obtained by the use of this drug hypodermically. He begins by injecting one-twelfth of a grain and gradually increases the dose to one-sixth or one-fourth of a grain, if it is well borne. Ammonia is administered to prevent cardiac depression; the patient is placed in the recumbent posture, and great care is used to prevent his catching cold. The cases in which good results are obtained are those with a syphilitic history; those who say they can hear when spoken to distinctly, or whose deafness began with a difficulty of dis-

criminating sounds, or who cannot make out a general conversation, and hear worse when tired, nervous, or out of health.

Some cases of aural vertigo are benefited, as are some who hear the tuning-fork on the forehead indifferently or not at all.

Cases which hear better in a noise, or those who say they are worse after a cold, are not usually improved. If middle-ear disease is associated with mischief in the internal ear, the Eustachian catheter should be passed from time to time for the injection of vapors.

**A Simple Method of treating Lachrymal Obstruction.** (*New York Medical Journal*, June 4, 1892.)—Dr. George M. Gould advises the following: Empty the sac and canaliculi by dexterous pressure, and cleanse the eye and palpebral pockets of this unhealthy material. Then cant the patient's head back and to one side, or have him lie so that a teaspoonful of liquid will be held in the depression formed by the nose, orbital border, and superior maxilla. Fill this space with a solution of boric acid, ten grains, common salt, three grains, chloride of zinc, one grain, to an ounce of distilled water deeply tinted with pyoktanin blue, with the little finger again slowly empty the sac and canaliculi by pressure, and then, as slowly lessening the pressure, allow these spaces to refill, by suction and capillary attraction, with the solution under which the puncta are submerged. Again, in half a minute empty the canaliculi and sac by pressure, but this time beginning the pressure from the canthus towards the nose and downward, so as to force the antiseptic solution downward into the duct. These alternate emptyings and refillings of the sac may be repeated several times and as often as desirable to meet the indications of the case. It will usually be found that the sac will soon become healthy and that pressure upon it will not cause regurgitation of morbid material through the puncta.

A certain number of cases will not yield to this treatment. There is too great stenosis or spasmodic contraction of the muscular sphincter of the punctum, etc., so that the cleansing solution cannot be forced into the sac and duct. In such cases I am accustomed to insert one sharp point of the iris scissors into the punctum and snip it open, one-eighth of an inch, perpendicularly downward towards the conjunctival fold. This gives a larger opening for the entrance of the solution.

**The Treatment of Aural Pain.**—Dr. Ralph W. Seiss (*Therapeutic Gazette*, June 15, 1892) describes the treatment he has found most efficacious in relieving "earache." For the pain from eczema of the auricle he advises irrigation with warm water for five minutes, drying the parts carefully, and the application of a five-per-cent. ichthyol ointment or the yellow oxide of mercury. In furuncle of the canal he incises, swabs out the cavity with sterilized cotton, and applies iodoform. Diffuse inflammation he treats with repeated applications of black wash, diluted one-half or more, or a one to twenty ointment of red oxide of mercury. Applications of



hot water, containing half a drachm of laudanum to the ounce, are useful. Brawny swelling or pus-formation calls for free incision. Foreign bodies should be removed by irrigation whenever possible. Instrumental efforts should be made with great care.

Acute earache in children is nearly always due to myringitis and catarrhal inflammation of the middle ear, or to an acute Eustachian salpingitis. The instillation of four or five drops of a five-per-cent. solution of cocaine into the nostril of the affected side, allowing it to trickle backward over the floor and lateral walls of the nasal chamber, relieves the tension at the orifice of the Eustachian tube. The nares are then cleaned by the use of a mild antiseptic spray, and inflation by Politzer's method is practised, with the result of opening the Eustachian canal and relieving the pain. Active treatment of the naso-pharynx should be carried out to avoid a recurrence of the tubal stenosis. In acute purulent otitis, if the Eustachian canal cannot be cleared, drainage is established through the external ear by puncturing the drum membrane at the point of greatest bulging in the inferior quadrant, care being taken to avoid wounding the promontory of the ossicles. Morphine hyperdermically or by the mouth is indicated in those cases where local measures fail to relieve. In the severe attacks of pain which occur in the course of chronic purulent otorrhœa, the treatment depends upon the cause. If due to obstructed drainage by accumulation of *débris*, irrigation with warm water will give prompt relief. Granulations may call for immediate surgical removal. Mastoid disease is usually due to interference with drainage, and the indications are to give ample outlet to the inflammatory products. When a blush is found over the mastoid process, the application of cantharidal collodion may cut short the trouble. If it becomes necessary to incise, Wilde's incision is the safest. Pure otalgia or neuralgia of the ear occurs rarely. Local applications of chloroform before or behind the auricle are valuable. Oil of peppermint also does good. Hot, dry compresses are comforting. Constitutional treatment must be resorted to.

A common form of earache is due to decayed teeth, and the patient must be sent to the dentist, but temporary relief may be given by applying tincture of aconite or oil of cloves to the gum or cavity of the tooth.

**Furuncle and Suppuration of the Ear treated with Menthol.**—Dr. Cholewa (*Monatsschrift für Ohrenheilkunde*, March, 1892) claims that the application of a ten- to fifteen-per-cent. solution of menthol in oil generally cut short commencing furuncles, and, when continued for a week, was not followed by relapse. In diffused inflammations or secondary, good results were obtained by its use. Where mastoid involvement had occurred, the menthol controlled the disease, and operation was avoided.

**Recurrent Œdema of Upper Lid from Nasal Polypus.**—Dr. John Dunn (*American Journal of Ophthalmology*, May, 1892) reports a case in

which sudden œdema of the upper lid had occurred several times unaccompanied by pain or inflammation. The anterior parts of both middle turbinates were found to be myxomatous and the seat of polyps. A cure was effected by removing the diseased tissue.

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## DISEASES OF THE LARYNX, NOSE, AND SURROUNDING STRUCTURES.

IN CHARGE OF J. PAYSON CLARK, M.D.,

Physician to the Throat Department of the Boston Dispensary; Assistant Physician for Diseases of the Throat, Massachusetts General Hospital.

The Rarity of Cortical Laryngeal Paralysis. (*Rev. de Laryngol., d'Otol., etc.*, June 1, 1892.)—Dr. Paul Raugé reviews the physiological experiments made on animals, which show the position of the cortical laryngeal centre in the lower animals and the bilateral action of each centre. Clinical experience, however, is in complete disaccord with the results of vivisection in this respect. If this bilateral action of each cortical centre were a fact in man, laryngeal paralysis of cerebral origin would be practically an impossibility. There are, however, a small number of well-authenticated clinical facts, proving that alterations in the laryngeal centre of one side cause hemiplegia of the opposite side of the glottis. The reason, probably, that these cases are so rare is that they generally escape observation. Cortical paralyses only reveal themselves by vocal, never by respiratory, symptoms. These may pass unperceived because of the constant unilateralness of this vocal paralysis, increased action in the well cord soon compensating the failure in adduction of the affected cord. Besides, in nearly all published cases symptoms of aphasia were present, making it difficult to appreciate the state of the voice. The laryngoscope alone will reveal the deformity of the laryngeal image expressing this motor disturbance. These cases, however, are frequently aphasics or hemiplegics, at times confined to bed, with little understanding and altogether difficult to examine laryngoscopically. Even if the laryngeal condition is discovered the existence of the cortical lesion must be confirmed by autopsy. It is also necessary to prove that the paralysis could have arisen from no other source. This requires a thorough macroscopic and microscopic examination. All cerebral cases must be systematically examined with the laryngoscope in order to form a solid clinical basis for a chapter on the nervous pathology of the larynx. In cortical paralysis the cord is always immobilized in respiratory abduction. The glottis has a sort of oblique position owing to the healthy cord exaggerating its normal excursion. This condition is absolutely constant only in a cortical lesion although found at times in lesions of the nerve-trunks and rarely of the bulb.



**Primary Inflammations in and about the Crico-Arytenoid Joint.** (*Berlin. klin. Wochenschr.*, May 16, 1892.)—Dr. L. Grünwald is preceded in the description of this condition by only three writers, and only one of these reports a primary case from catching cold. In the writer's first case a diagnosis was made by touching the left arytenoid with a probe causing a crackling, both felt and heard, and also the same bad feeling which had led the patient to consult a doctor. A second case with a similar affection of the right crico-arytenoid joint was seen a few days later. Both cases were acute, and the symptoms disappeared in a few days after the external use of unguentum hydrargyri and unguentum belladonnæ in equal parts. The symptoms are a peculiar disagreeable feeling, especially in swallowing, on one or both sides of the neck, now at the angle of the jaw, now over the hyoid bone or tonsil, set free by pressure in the region of the crico-arytenoid joint causing a slight crepitation, generally only felt, at times also heard, increase of this disagreeable sensation or its first appearance in the dorsal position especially on swallowing, inward movement of the affected cartilage (seen by the laryngeal mirror), on pressure externally in the region of the joint, circumscribed sensitiveness of the joint on touching it with a probe on the œsophageal side.

These symptoms, arising after cold, together with the rapid course, offer a typical picture of what the writer calls "rheumatic" synovitis crico-arytenoidea acuta.

In sixteen observations he has seen five uncomplicated cases, the others being complicated or rudimentary or acute periarthrititis and chronic conditions resulting therefrom. Cases were equally divided between the sexes, the ages being from ten to fifty. In six cases the disease was a recurrence. Cold was a cause in seven, influenza in one, infectious angina in one. Therapy was essentially antiphlogistic in acute cases, massage and faradization in chronic.

**Hints on Coughs.** (*New York Medical Journal*, May 28, 1892.)—Dr. Walter F. Chappell divides coughs into six classes, according to their frequency. The first class is the catarrhal cough, sometimes so called, to remove accumulations of mucus from the naso-pharynx or due to enlargement of vessels or gland tissue of the pharynx or base of the tongue.

Second class: From a common cold, acute rhinitis, extending later into trachea and bronchi.

Third class: Different forms of cough occurring in the various stages of phthisis.

Fourth class: Winter cough from bronchial catarrh, chronic bronchitis, and quiescent or arrested phthisis. Cough worse at night and in early morning. Expectoration, white and frothy.

Fifth class: Nervous coughs, generally of a reflex origin, paroxysmal, sometimes violent, characterized by short dry hacks.

Sixth class: Alcoholic or gastric. The patient shows symptoms of diges-

tive disturbance; fauces and pharynx are of a deep red, often bluish color. The condition is due to over-indulgence in food and alcoholic beverages. In persons of a rheumatic or gouty tendency very little will produce this result. His directions for treatment contain nothing new.

**Treatment of Diphtheria.** (*Le Mercredi Méd.*, May 11, 1892.)—Dr. Josias insists upon the importance of a bacteriological examination of the false membrane in every case of suspected diphtheria, to distinguish the true from the false variety, and mentions twelve cases of the latter discharged from the diphtheria ward on discovering the nature of the affection. In thirty-three cases of genuine diphtheria treated by the following method he obtained twenty-four cures.

The plaque is rubbed with a dry tampon first to remove any loose false membrane. A cotton tampon, previously dipped in a solution of "phénol sulfo-riciné" containing twenty per cent. of phenic acid, is then applied. These applications are repeated six times in twenty-four hours. In the intervals the throat is washed often with lime-water. The internal treatment consists of alcohol and poisons. In grave cases inhalations of oxygen are given. When the membrane is no longer reproduced the "phénol sulfo-riciné" is replaced by a three-per-cent. glycerin solution of salicylic acid, and the lime-water by a thirty-per-cent. [?—REV.] solution of boric acid.

**American Laryngological Association.** (*Boston Medical and Surgical Journal*, June 30 and July 7, 1892.)—The fourteenth annual meeting of this association was held at Boston, June 20, 21, and 22, 1892. In the course of his address the president, Dr. S. W. Langmaid, referred briefly but appropriately to the death during the year of two members, one an active member, Dr. Frank Donaldson, of Baltimore, the other honorary, Sir Morell Mackenzie, of London. He also spoke of the wonderful increase in laryngological knowledge in a comparatively short period of time, and enumerated the subjects of some of the most valuable papers contributed by members of this association to laryngological literature during the past ten years, referring incidentally to the advances in all branches of medicine and surgery made during this period, especially in the departments of brain and abdominal surgery, discoveries in the biological laboratories having helped much in this advance. He concludes by expressing a hope for the continued usefulness and prosperity of the association.

Following are brief abstracts of the papers read at the meeting:

**The Influence of Certain Diathetic Conditions upon the Prognosis in Operations upon the Throat.** By Dr. D. Bryson Delavan.—It is important to discover the possible existence of such a condition before operation. In exophthalmic goitre and in general lymphadenoma the removal of enlarged tonsils or of adenoid hypertrophy at the vault of the pharynx is attended with no extraordinary risk. In strumous cases com-



plete removal of the offending tissue is more difficult, recovery slower, and recurrence more probable. The earlier such cases are operated on the better. In rheumatic cases no especial difficulties offer, and the prognosis is most brilliant. The hemorrhagic diathesis is the most important because the most dangerous. Its presence contra-indicates all surgical interference.

Adenoid enlargements are unusually common in these patients, but there is no safe method known of operating on them. The writer urges (1) that a rigid examination as to the possible existence of the hemorrhagic diathesis be made prior to every tonsil or adenoid operation; (2) that in the existence of hæmatophilia operation by any procedure at present known is absolutely contra-indicated; (3) that, since many of these cases urgently require relief, it is most desirable that a method of reaching them more satisfactory than any heretofore practised be suggested.

**Correction of Deformity resulting from Abscess of the Nasal Septum.**—Dr. J. O. Roe presented photographs illustrating the results of a new method for correcting this deformity which he had found very successful in two cases. As a description of the operation would not bear abbreviation without losing in clearness, the reader is referred for it to the original article.

**After-Results of Nasal Cauterization.**—Dr. T. A. De Blois gave the history of five or six cases, seen two or more years after this operation. In most of these the cauterization had been for an hypertrophied turbinated body, immediate results being more or less successful. Two years later nasal obstruction was found to exist, caused in some by a swollen mucous membrane on either side of the scar. In one case there were corrugated folds of mucous membrane resulting from frequent cauterizations. Some of these cases showed that the cautery might fail of the desired result by, on the one hand, making the scar-tissue too deep, on the other, too shallow.

Dr. Jonathan Wright reported a case of fibrous epithelioma at the root of the tongue, interesting from being in the form of two hard and firm prominences on each side at the base of the tongue.

Dr. C. H. Knight reported an intubation for chronic stenosis in a boy of ten. The points of interest were (1) the simplicity of intubation as compared with tracheotomy and the ease with which the tube was extracted with the aid of cocaine and under the guidance of the mirror; (2) the slight amount of disturbance excited by the tube, and the absence of objection to its prolonged retention. Finally the question suggested itself, was it a case of primary laryngeal tuberculosis? The patient at last succumbed to general tuberculosis.

Dr. Alex. A. MacCory described two rare cases of laryngeal growth, one myxoma, the other fibroma. Dr. H. L. Swain related the history of a case of fibro-myxoma of considerable size, attached by a pedicle to the anterior commissure of the vocal cords. It was removed with some difficulty.

Dr. J. H. Bryan related the history of a rare case of suppuration of the left ethmoid cells terminating in caries. There were two mucous polypi attached to the anterior extremity of the middle turbinated bone, and the case was also complicated by abscess of the antrum.

## DERMATOLOGY.

IN CHARGE OF J. J. PRINGLE, M.B. (EDIN.), F.R.C.P. (LOND.),

Physician to the Department for Diseases of the Skin in the Middlesex Hospital, London.

**A Case of Angiokeratoma.** (*Berliner klin. Wochenschrift*, No. 20, 1892.)—M. Joseph showed a case of this rare disease at the meeting of the Berliner Medicinische Gesellschaft on March 30. [It was stated to be the eighth on record, but at least twelve cases have been published. These are, in chronological order, one by Dubrenith, two by Colcott Fox, one by Mibelli, one by Merklen, two by Pringle, one each by Crocker, Bertarelli, Buzzi, Mibelli-Barduzzi, six in one family by Mibelli, and some by Breda.—J. J. P.]

The patient was a man, aged nineteen, who had suffered from chilblain from infancy. The changes now present began to manifest themselves at the age of ten. The hands were considerably swollen and bluish-red in color. There were present on the dorsal surfaces of his fingers a large number of hemorrhagic specks, the size of a pin's point, which did not change color on pressure. In some places there were present little warts, rough and irregular on the surface, which sometimes contained a number of hemorrhagic points at their base. The blood exudation occurred either alone or in great abundance, and accompanied by the warts. The disease was symmetrically distributed on both hands as well as on the toes of both feet. Microscopic examination of an excised portion of skin showed, in addition to a number of dilated blood-vessels, a number of smaller or greater lacunæ in the papillary layer. Afterwards marked hypertrophy of the *stratum corneum* occurred, constituting a true wart, and justifying the title of angiokeratoma, given to the disease by Mibelli. The treatment was carried out by the "microbiennner" of Unna as modified by Buzzi.

**Menthol in Pruriginous Skin Affections.** (*Giornale ital. delle mal. vener. e della pelle*, 1892, Fascie 1.)—Colombini publishes a number of experiments with menthol in ethereal, alcoholic, or oily solutions of five to ten per cent. in various itchy dermatoses. He eliminates those affections of the skin in which itching is symptomatic of the presence of parasites, and thinks that itchy eruptions may be classified under three heads: (1) where itching is the consequence of an eruption,—*e.g.*, eczema; (2) where itching constitutes the whole of the disease,—*pruritus nervosus*; (3) where the



cutaneous lesions are the consequence of scratching, provoked by the pruritus,—*e.g.*, urticaria. Dermatoses of the first group were benefited by menthol incorporated in various pastes, such as oxide of zinc and salicylic acid. The results in the second group were not so satisfactory, although some good results were obtained. In the third group the remedy is almost invariably efficacious. Where ulceration is present or one is dealing with mucous membranes the strength of the application must be reduced. The only objection to menthol is the sensation of burning followed by cold, which renders its application over an extensive surface difficult.

**The Treatment of Scleroderma in Bands by Electrolysis.** (*Jour. of Cutaneous and Gen.-Urin. Dis.*, July, 1892.)—Broeg gives a short account of a case treated by him and demonstrated before the Société Française de Dermatologie in January, 1892. The affection, which was progressive when the patient came under observation, ceased to extend as soon as electrical treatment was begun. It was found that the introduction of the needle perpendicularly, and as deep as the subcutaneous layers, was not nearly so efficacious as when it was introduced very obliquely without reaching the subcutaneous tissue. Broeg's opinion is that electricity in those cases acts "quite in a mysterious manner; that it can act at a distance, and that it does not act at all by its destructive power." The object of treatment, therefore, is to obtain electrolytic action with the minimum amount of destruction possible. Feeble currents must therefore be passed, and the electricity must only be allowed to act for a short time at each point, so that numerous punctures can be made at one sitting.

## HYGIENE AND BACTERIOLOGY.

IN CHARGE OF A. C. ABBOTT, M.D.,

First Assistant in the Laboratory of Hygiene, University of Pennsylvania.

**Trichinosis.** (*Boston Medical and Surgical Reporter*, vol. cxxvii., No. 3, pp. 59–61.) By J. H. McCollom.

In this not only interesting but very important communication upon the disease trichinosis the author presents a number of points worthy of the consideration of all who are interested in matters pertaining to the public health. After an historical review of the subject he continues:

Although comparatively few cases of trichinosis are reported, it is probable that the disease is much more frequent than is generally supposed, from the fact that at autopsies from one to two per cent. of the bodies are found infested with calcified trichinæ.

The rarity of the disease renders the diagnosis extremely difficult. Rheumatism, typhoid fever, and typhus fever are frequently confounded with it. Diarrhœa is often a prominent symptom in trichinosis as well

as in typhoid fever. The muscles present various degrees of swelling and hardness. The patient lies with the knees drawn up and with the arms sharply bent, presenting somewhat the appearance of a person suffering from an attack of acute rheumatism. Delirium of an active form is not present, but there is a peculiar apathetic state of mind. Œdema of the eyelids and face is an important pathognomonic sign, appearing about the seventh day, disappearing in about five days, and returning in some cases after a few weeks. Violent and tumultuous action of the heart is often a prominent symptom in the first week of the disease, due, probably, to the irritation of this organ by the parasite. The constant movement of the heart, however, soon drives the intruder to other and more quiet parts of the system. This is probably the reason why at autopsies trichinæ have not been found in the heart when every other organ of the body has been invaded. The immediate cause of death, in a very large proportion of cases, is insufficiency of respiration due to the immense number of trichinæ in the respiratory organs, the diaphragm, and the muscles of the larynx.

A few words regarding the natural history of this parasite may not be amiss. It is found in two forms, the intestinal trichina and the muscle trichina. The mature intestinal trichina is a fine, round, slightly-coiled worm. The males are a millimetre and a half long. The females are from three to four millimetres long. At the caudal extremity of the males are two lobular masses, the penis and the anus. In the females the genital opening is situated at the junction of the first and second quarters of the whole body. The embryos are born living. The birth of the embryos begins on the seventh day after the introduction of the muscle trichina into the stomach, and may continue for weeks. These embryos soon emigrate to the voluntary muscles by penetrating the intestinal wall. In some instances it is possible that the embryo may penetrate the coats of the blood-vessels, and be carried by the circulation to the different parts of the body. After reaching the muscles they force themselves into the primitive fasciculi, increase in size, and finally roll up in coils. The sarcolemma of the primitive fasciculus around the trichinæ enlarges and forms the capsules by the proliferation of cells. In fourteen days the muscle-trichinæ attain their full size,—from seven-tenths to one millimetre in length. After a time a deposition of lime salts takes place in the capsules, and they then present the appearance of small white dots or lines which can be seen with the naked eye.

All animals may become infested with trichinæ, the carnivorous through the medium of their food; the herbivorous by drinking-water. The vitality of this parasite is very great; it may live for a long time in decomposing flesh and in water. Trichinæ have been discovered in all countries where investigations have been made, but this parasite has been found to prevail to a greater extent where it is the custom to feed swine on city swill and the refuse from slaughter-houses.

The symptoms caused by the presence of this parasite in the hog are



practically similar to those observed in man, although there have been no very extended investigations regarding this subject.

It is frequently said that cooking renders pork infested with trichinæ harmless. While it is true that a temperature of 170° F. will destroy the parasite, it is also true that in many instances the interior parts of large hams, during the process of cooking, are not heated to this point. There are also many of our citizens who prefer, possibly from motives of economy or from habit, to eat underdone pork; and they certainly should be protected.

In European countries at the present time there are very stringent regulations regarding the microscopical examination of swine slaughtered for food. In this country a microscopical examination is made only of pork that is intended for exportation to European countries.

If, for the export trade, a well-conducted system of microscopical examinations of pork intended for food has been inaugurated, how much more important it is that a similar system should be established for the examination of pork intended for home consumption.

In order to render pork absolutely harmless as an article of diet the following measures are requisite:

1. Regulations regarding the feeding of swine; particularly the prohibition of the use of city swill and slaughter-house refuse.
2. Microscopical examination of a portion of the carcass, as is now done with pork intended for exportation.
3. Regulations regarding the proper housing of swine.
4. Instructions regarding the importance of properly cooking pork.

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## PATHOLOGY.

IN CHARGE OF ALLEN J. SMITH, A.M., M.D.,

Professor of Pathology in the Medical Department of the University of Texas, Galveston, Texas.

Further Investigations as to Parasitic Sporozoa in Cancers. (Weitere Untersuchungen über schmarotzende Sporozoen in den Krebsgeschwülsten. *Centralblatt f. Bakteriologie u. Parasitenkunde*, Bd. xii., No. 1.)—In an earlier issue of the above-named journal (Bd. xi. Nos. 16 and 17), Podwyssozki and Sawtschenko published a somewhat extended review of the subject of parasiticism in cancers, together with the description of a number of forms of sporozooid bodies observed by themselves in various cancerous tumors. These bodies were very irregular in size and appearance, some being without nucleus and looking like small masses of protoplasm enclosed within vacuoles in the tumor-cells, others being provided with well-differentiated nucleus and protoplasm, and not unlike the host-cells themselves (daughter-cells in Virchow's physaliphora). The peculiar

shapes of some, suggesting the possession of amoeboid motion, could well be regarded as indicative of their vital, parasitic nature; and among others some were noted as very like certain recognized stages in the development of sporozoa, globular intercellular bodies with spindle-shaped spores. The authors were unable to discover such intermediate forms as would establish a definite genetic relationship between these bodies, nor could they positively declare in all cases the parasitic nature of the corpuscles; nevertheless the general trend of their studies was favorable to such conclusions. In a second article in the same journal, the latter of these investigators details the results of the study of an epithelioma of the lip, with secondary deposits in the neighboring lymph-glands, which happened to be particularly rich in the various bodies held to be parasites. In some instances these bodies were very like those described some time since by Sjöbring, but they include a larger variety, and probably indicate more completely the life-history of the parasites in the cancer-cells. The technique of preparation consisted briefly in the use of Flemming's solution, and staining with safranin and picric acid, or with gentian-violet and eosin in the usual manner. Upon examination by means of the microscope, perhaps the most prominent feature to be met both in the cells of the primary tumor and in the metastatic cells was the degree of vacuolization present. These vacuoles were of a rounded shape, of variable size, the smallest measuring perhaps four or five micro-millimetres in diameter, the largest occupying almost an entire tumor-cell. In some of these there could not be recognized any contents, or at best but a small amount of granular matter, probably of an albuminous nature, and coagulated by the reagents; in others, however, could be seen masses of protoplasm varying in size with the size of the individual vacuoles. These protoplasmic corpuscles could be easily differentiated from the protoplasm of the host-cells by the stains mentioned; in shape they were sometimes globular or oval, or sometimes irregular in outline, and presenting prolongations much like those of rhizopods. While this irregularity existed between the individuals, in a general way these bodies possessed a type of form not dissimilar to the larva of the frog, with a sort of dent or umbilication in the middle. The smallest of these corpuscles were apparently quite homogeneous and without a nucleus; in the larger forms the central or forward part presented a small intensely stained mass which should perhaps be regarded as a nucleus. Regarding these masses of protoplasm as living parasites, the existence of empty vacuoles is explicable as having been previously occupied by parasites which had left them; especially is this supposition tenable since, in several instances noted by the author, there seemed to be indicated a power on the part of these organisms to move from place to place.

While in some examples there could not be positively excluded the possibility of some degenerative change giving rise to the appearances noted, the strong similarity in other instances to sporocysts could not be denied. Often the tumor-cell could be seen with its nucleus pushed to one side and



the protoplasm completely occupied with numerous vacuoles; and with high powers each of these vacuoles presented one or two of the peculiar "frog-larva," comma-shaped bodies,—in all perhaps forty to fifty in one cell. These masses or sporocysts were apparently provided with a capsule, evidently originating from the parasite rather than from the cell-protoplasm, and the bodies within the cysts were evidently identical with the single individuals above described as embedded in the protoplasm of the cell. From the author's investigations it would appear that one of the wandering parasites, which are usually of a more or less globular shape with tail-like prolongation, enters the protoplasm of a cell, gradually loses its tail and assumes a rounded form (at rest), and forms a capsule around itself. Sometimes if several parasites are situated close to one another at this stage, one capsule encloses all, the individuals being separated by very finely-marked partitions; but it is difficult to say whether this arrangement is merely the result of accident or possesses special significance. By careful staining a nucleus can at this stage be still distinguished. Gradually from this stage onward the capsule becomes a more and more prominent feature, and presently at its periphery can be observed a number of minute corpuscles of some shining, highly refractive substance; and as these become more and more visible the nucleus becomes more and more indistinct. When it has finally entirely disappeared the parasitic body seems to be uniformly granular. Later these granules develop into globular corpuscles like those first observed at the periphery, and in the mean time the latter have become larger and ovular, with a small, clearly-defined point in the middle. As the ovules continue to develop, these points become changed into spore-like bodies of a somewhat cylindrical or worm-like appearance. Development continuing apace, the ovules at the periphery keeping constantly in advance of the central ones in their growth, the capsule presently begins to disappear, being perhaps employed in the formation of capsules about the newly-created parasites. Gradually with the increasing growth of the ovular or globular bodies the protoplasm of the host-cell is more and more invaded and occupied, and finally the bodies nearest the cell-wall are found to migrate to neighboring cells. It is thus apparent that the substance now holding the individual ovules together is nothing more than the protoplasm of the host-cell, and it is evident that at this period the term "sporocyst" is no longer tenable, as it presupposes a capsule arising from the parasites themselves. Exactly what becomes of these oviform bodies is not certain; some probably go on to maturity within the mass, at least one or two being easily seen, while in broken-down parts of the tumor quantities of them may be distinguished. Some, too, are transformed into small comma-shaped parasites, which may be seen within the masses and occasionally alone in the cancer-cells away from the masses.

Besides these forms, the author observed a number of the so-called physaliphora, cells containing in vacuoles small bodies similar in appearance to the host-cells, but distinguishable from the protoplasm of the latter by

stains like safranin. In some of these the nucleus of the enclosed "daughter-cell" was in the form of two small crescentic bodies with pointed ends lying at right angles over each other; occasionally instead of two there were four such crescents arranged in pairs, one pair at right angles with and over the other. In well-stained preparations the ends of these crescents took on the more intense color.

Taking into consideration the similarity between these different forms and the development of some of the gregarinæ and coccidia, as *klossia*, *coccidium oviforme*, etc., the author believes that it can scarcely be denied that they represent forms of some sporozoon parasitic to the tumor, although at present it is as yet impossible to determine the direct relation borne to the tumor. It is noteworthy that, while the author was able to distinguish forms very like the above in a mammary cancer, he found different varieties in several other cancerous tumors which he examined, the differences being, however, too slight to destroy the general type. He suggests that perhaps the difference in the nutrient matter afforded the parasites in different parts of the body may account for these variations; or perhaps different species of sporozoa may infest the different neoplasms. As an explanation of the manner in which these parasites influence the growth of the cancer, especially in view of the fact that they are never to be seen in cells undergoing multiplication, the author suggests the possibility of their elaborating some chemical substance possessing the power of inducing epithelial proliferation.

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## CLIMATOLOGY.

IN CHARGE OF GUY HINSDALE, M.D.,

Lecturer on Climatology in the University of Pennsylvania, Philadelphia.

**The Climatic Treatment of Chronic Diarrhœa.** (*Climatologist*, June, 1892.)—Dr. W. W. Johnston says: "Chronic colitis is by no means cured when the diarrhœa is arrested, and recurrences soon show that the lesion is there although its chief symptoms have been temporarily suspended. To secure a complete restoration . . . a long period of apparent cure must pass; and the aim is not so much to stop diarrhœa as to place the mucous membrane beyond the point of liability to fresh congestions and cell-infiltrations, from internal irritation or external chilling." From three to six months or a year are required for treatment, and this time should not be spent in travelling or sight-seeing; nor do long ocean voyages meet with approval. "The typical climate for chronic diarrhœa should have a low temperature, as equable as possible, combined with great atmospheric dryness, with a dry, porous soil, a clear sky, and with little rain-fall or snow-fall. To these conditions must be added the pleasures of fine scenery, agreeable companionship, with opportunities for amusement, etc." The more favorable localities for a summer residence are, for the



milder cases, the shores of Virginia, Delaware, New Jersey, or Long Island. The winter localities recommended are the mountain region of North Carolina, and the States of Georgia, Colorado, and Southern California.

**California for the Consumptive.** (*Cleveland Medical Gazette*, June, 1892.)—Dr. Henry S. Upson advocates strongly camp-life in a suitable place as a remedy for phthisis in its early stage. Los Angeles, Santa Barbara, the Ojai Valley, and the high Sierras abound in attractions for outdoor life. Among the points considered are the moisture and the fairly equable temperature of the coast, the dryer air, and greater variations of heat and cold in the valleys and on the mountains, and the shelter from wind afforded by mountain ranges. Dr. Upson believes the time has gone by for the massing of consumptive patients in moist and enervating spots for the purpose of avoiding exposure to cold. He admits that Southern California is at times disappointing in many features on which expectations had been raised, and shows that a good climate for the phthisical and a beautiful country do not naturally coexist, largely because moisture is necessary for vegetation and dryness for health.

**Climate and Mortality of Fort Smith, Arkansas.** (*Climatologist*, June, 1892.)—Dr. E. G. Epler gives the results of a careful study of the climate of Western Arkansas, and the mortality records of Fort Smith. Ten and six-tenths per cent. of the total number of deaths are due to phthisis; the records show that this disease increases in prevalence as the aggregation of people becomes greater. During the last ten years the mortality from malarial fever gradually increased, culminated in 1886, and has since steadily declined. This report shows that Western Arkansas is far more healthful than the eastern border of the State.

**Climate of Great Britain and Ireland.** (*Lancet*, June 4, 1892.)—Mr. R. H. Scott shows that the differences in temperature between one place and another are very largely due to differences of exposure. Protection from winds by intervening woods or adjacent heights is what mostly renders a situation agreeable to invalids, so that "in any district the existence of a drive or a walk sheltered from north and east winds and exposed to any gleams of sunshine which may come is sufficient to attract residents at once." The Scilly Isles, off Land's End, are the warmest in Great Britain, surpassing the western coast of Cornwall and the Channel Islands. The coldest regions, at sea-level, are the extreme northeast of Aberdeenshire, in Scotland, and the Wash, in England. The isothermal lines run generally north and south, the warmth lying to the southwestward. The most equable climate is found in the two southwestern stations, Falmouth, in Cornwall, and Valentia, off the coast of Ireland. Mr. Scott's article is published in full in *Longman's Magazine*.

## REVIEW OF ITALIAN, SPANISH, AND PORTUGUESE MEDICINE.

IN CHARGE OF A. M. FERNANDEZ DE YBARRA, M.D.,

Corresponding Member of the Medico-Chirurgical Academy of Madrid, Spain, the Argentine Medical Circle of Buenos Ayres, South America, and the Society for Clinical Studies, of Havana, Cuba.

**Etiology of Primary Croup.** (*Archivio Italiano de Pediatria*, March, 1892.)—In this conscientious work, written by Drs. Egidi and Concetti, a strong plea is entered on the identical nature of primary croup and diphtheria. Judging by a careful reading of the paper, we are glad to discover that the dualistic theory of these two affections of the throat has made great progress in Italy, and that to-day the majority of the practitioners of that country firmly believe croup is not so dangerous a disease as diphtheria. The authors, however, try to prove that it is necessary to return to the ideas of Bretonneau and Trousseau on the subject. Dr. Egidi presents the clinical reasons in support of that theory, and speaks of a recent epidemic of croup in Rome, in which some of the patients, after having been tracheotomized or intubated, died two or three days afterwards with symptoms of adynamia. Dr. Concetti gathered false membranes from his patients, found in them the Klebs-Löffler bacillus, and made cultures in agar-agar with glycerin; he inoculated several animals, and reproduced the disease in them.

From a total of sixteen cases of so-called primary croup in children, the bacteriological examination of the false membranes showed the pathogenetic bacillus in fourteen. "From this fact we can affirm," say the authors, "that in primary croup the diphtheritic nature is proven in the proportion of 87.5 per cent." Dr. Concetti describes very minutely the procedures for the examination, cultivation, and inoculation of the bacillus. He claims that after the first twenty-four hours the diagnosis can with certainty be established, in a doubtful case, by means of the microscope.

**Two Cases of Acute Nephritis caused by Eczema.** (*Archivio Italiano de Pediatria*, March, 1892.)—Dr. Decio Felici records the clinical history of two young children (a boy of six and a girl of twelve years of age) suffering at the same time from an attack of acute nephritis. They had patches of eczema on the scalp. There was no other reason whatever that could explain the appearance of the nephritis on both of them with an interval of only a few days. The author, therefore, asks whether the eczematous patches could not have been the entering door for microscopic organisms, and these germs the direct cause of the nephritis. He is not the first to advance that theory, for it has been already defended by Eichhorst. Future bacteriological researches will perhaps solve the problem.

**Study of the Physiological Action of Massage on the Muscles.** (*Archivio per le scienze mediche*, vol. xvi., No. 2.)—Dr. A. Maggiora writes



again on this attractive subject, having formerly published a learned monograph on the influence of massage on muscular contraction. His conclusions are :

1. Massage applied to a muscle in the state of repose increases its power of resistance, and modifies the curve of weariness by retarding its manifestations.

2. The salutary effect of massage is, inside of certain limits, proportioned to its duration, but if the action is prolonged beyond that limit, no increase of the mechanical work of the muscles can be obtained.

3. Massage can prevent the accumulation of fatigue in the muscles caused by too continuous work.

4. The different ways of applying massage produce different effects on the excitability of the muscles to perform their work ; so that, for instance, a light friction or beating is inferior to kneading.

5. When applied to an enfeebled muscle, it can improve its power of resistance.

6. On a muscle weakened by any cause which affects the entire muscular system, as a very long walk, wakefulness, excessive psychical work, an attack of fever, etc., massage exerts an invigorating action.

7. The beneficial effect of massage on muscular contraction is not manifested if it is applied to a muscle where the blood circulation is interfered with. All the experiments were performed with Mosso's ergograph, a description of which will be found in the inventor's memoir entitled "The Laws of Fatigue Studied on the Muscles of Man."

Cocaine in Operations on the Eye. (*Gaceta Médica Catalana*, Barcelona, May 31, 1892.)—Dr. J. Barraquer says he uses cocaine very frequently in his large ophthalmological practice with excellent results. His method of procedure is to instil into the eye a few drops of a five-per-cent. solution of the hydrochlorate before performing keratotomy or iridectomy. If extraction of the crystalline lens without iridectomy is to be performed, the operation, he says, is rendered necessarily painless with this practice, because, of the tissues to be incised, the mucous membrane alone is supplied with nerves. [In making such a statement the author is wrong, for the nerves of the cornea are numerous, twenty or thirty in number.—TR.] When making an artificial pupil, not enough insensibility is produced with the simple instillation of the solution of cocaine, and in those cases Dr. Barraquer puts besides an injection of two or three drops of the same solution under the mucous membrane, near the corneal margin, at the point where the incision is to be made. He claims that a few minutes after the injection, the drawing out of the iris and the incision made into it are painless.

# FORENSIC MEDICINE.

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IN CHARGE OF LORENZO D. BULETTE,  
Of the Philadelphia Bar.

## THE LAW OF LIBEL AND SLANDER AFFECTING PHYSICIANS AND SURGEONS.

THE law protects every man in the right to have his good name preserved inviolate and free from disparagement and defamation. This right, which is absolute against all the world, is a species of property that each man has in his reputation, professional or individual. And such property, as in the case of a physician or surgeon, is, if possible, more valuable than property of a different kind; since, if we consider the degree of suffering and the nature of the injury caused by loss of character and professional reputation and compare it with that occasioned by loss of other property, the amount of the former far exceeds that of the latter.

Words are defamatory when they cause any appreciable injury to the reputation of another; and if false, they are actionable. They constitute a libel when written or printed and published; when spoken, a slander. Again, words which on their face are clearly defamatory—that is, must injure the reputation of the person to whom they refer—are actionable *per se*, or without proof that any particular damage has resulted from their use. On the other hand, words which merely might tend to injure the reputation of another are *prima facie* not defamatory, and, even though false, are not actionable unless as a matter of fact some perceptible injury has resulted from their use.

Says an able writer on this branch of the law:<sup>1</sup> “The presumption that words are defamatory arises much more easily in cases of libel than in cases of slander. Many words which if printed and published would be presumed to have injured the plaintiff’s reputation will not be actionable *per se* if merely spoken. Two reasons are usually given for this distinction: First, a slander may be uttered in the heat of a moment, and under a sudden provocation; the reduction of the charge into writing and the subsequent publication of a libel show greater deliberation and malice. Second, *vox emissa volat; litera scripta manet*. The written or printed matter is permanent, and no one can tell into whose hands it may come. Every one now can read. The

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<sup>1</sup> Odgers, Libel and Slander, \*p. 3.



circulation of a newspaper is enormous, especially if it be known to contain libellous matter; and many people implicitly believe every word they see in print. And even a private letter may turn up in after years, and reach persons for whom it was never intended, and so do incalculable mischief. Whereas a slander only reaches the immediate by-standers, who can observe the manner and note the tone of the speaker,—who have heard the antecedent conversation which may greatly qualify his assertion,—who probably are acquainted with the speaker and know what value is to be attached to any charge made by him; the mischief is thus much less in extent, and the publicity less durable.”

It may be laid down as a general rule that when the words or language used of a medical or surgical practitioner imply gross ignorance and unskillfulness in his profession, the words are actionable *per se*. This is upon the ground that the law presumes damage to result from the very nature of the charge. The law in such a case lays aside its usual strictness: for when the presumption of damage is violent, and the difficulty of proving it is considerable, the law supplies the defect, and, by converting presumption into proof, secures the character of the sufferer from the misery of delay, and enables him at once to face the calumny in open court. It has accordingly been held that to call a physician a “quack” is thus actionable; for this is in effect to charge him with a want of the necessary knowledge and training to practise the system of medicine which he undertakes to practise, and which he holds himself out as having by undertaking to practise. The same is true of words used of a physician charging that “he is an empiric and a mountebank;” or that “he is no doctor; he bought his diploma for fifty dollars;” or that “he is a quack, and if he shows you a diploma, it is a forgery.” To say of a physician that “he is a drunken fool and an ass; he never was a scholar, and is unworthy to speak to a scholar” is slanderous; since such words touch him in his profession. No man can be a good physician unless he is a scholar.

It is also actionable without proof of special damage to say of a physician, “he has killed the child by giving it too much calomel;” or “Dr. A. killed my children; he gave them teaspoon doses of calomel, and it killed them; they died right off the same day;” or “he has killed six children in one year;” or “it is a world of blood he has to answer for in this town through his ignorance; he did kill a woman and two children. He was the death of J. P.; he killed his patient with physic;” or “I wonder you had him to attend you; do you know him? He is not an apothecary; he has not passed an examination; he is a bad character, none of the medical men here will meet him; several have died that he has attended, and there have been inquests held upon them;” or “if Dr. C. had continued to treat S. she would have been in her grave before this time; his treatment of her was rascally.”

On the other hand, it is not actionable without proof of special damage to say of a physician, “he is a two-penny bleeder;” or “he is so steady

drunk he cannot get business any more." The same is true of words charging a physician with adultery unconnected with his professional conduct. But it would be otherwise if he had been accused of seducing or committing adultery with one of his patients.

The employment must be lawful, for it is such only that the law protects. It is not, therefore, actionable to charge one who is not legally authorized to practise physic or surgery, and to receive a compensation therefor, with ignorance of the healing art or with having destroyed human life by lawful but misapplied and well-intended efforts to preserve it. Nor is it actionable to say of such person that "he is a quack," or an "impostor."

Where the language of a publication is libellous, it is no defence to an action by the party aggrieved that the publisher did not know it. The intention or motive which prompted the use of the words is, as a rule, immaterial. If one has, in fact, injured the reputation of another he is liable, although he did not intend to do so, and had no such purpose in his mind when he spoke or wrote the words. Every man must be presumed to intend and know the natural and ordinary consequences of his acts; and this presumption (if indeed it is ever rebuttable) is not rebutted merely by proof that at the time he uttered or published the words the defendant did not attend to or think of their natural or probable consequences, or hoped or expected that these consequences would not follow. Such proof can only go to mitigate the damages.



## BOOK REVIEWS.

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TRANSACTIONS OF THE COLLEGE OF PHYSICIANS OF PHILADELPHIA. Third Series, Vol. XIII., 1891.

This volume contains all the papers read before the College from January to December, 1891, inclusive. The book opens with the president's annual address, delivered by D. Hayes Agnew, on December 2. The great surgeon discharged his "last duty" with infinite grace, and stamped the few words he uttered with his own peculiar personality. Dr. Hirst places on record the very satisfactory results he has secured in an effort to obtain a perfect substitute for human milk, based on chemical and clinical studies. He employed a combination of cream and milk, in the proportion of two to one, heated carefully over an alcohol lamp, with a small amount of pancreatin, to which was added later a portion of a prepared sugar-of-milk solution, and the whole set aside in two-ounce bottles, with sterilized cotton plugs, until wanted. Dr. Morris J. Lewis relates the history of a case of extra-uterine pregnancy following dilatation of the cervix for dysmenorrhœa and sterility. An early diagnosis was made and the case carefully watched. Electricity was tried, but exerted no effect upon the fœtus. Abdominal section was finally performed by Dr. Charles B. Penrose, and the woman made a good recovery. This case seems to prove the utter uselessness of electricity for such conditions, even in the hands of an expert.

Dr. Willard details the histories of two cases of the removal of the laminæ for spinal fracture, which, although they both terminated fatally, are of sufficient importance to report, in order that deductions may ultimately be accurately drawn, and that the indications for operation may be finally settled. Dr. Willard also showed some of Gluck's ivory joints for replacing excised articulations. While no definite results have as yet been obtained with them, experiments in this direction show, at least, the tolerance of bone to foreign bodies. Dr. Thomas D. Dunn reports a unique case of ligation of the common carotid artery in a child of three and a half years for hemorrhage following peritonsillar abscess, with recovery. Dr. W. W. Keen advocates a new method of tenotomy, by which the tendons are lengthened to a definite extent, instead of the present hap-hazard method. Dr. Joseph Price contributes a valuable paper on the excision of the parotid gland, and exhibits a specimen from a case of Cæsarean section with removal of the uterus and a large fibroid tumor. Drs. Edward Martin and A. C. Wood write of gonorrhœal epididymitis. They consider that the prognosis, even of double epididymitis, is distinctly favorable. The deductions terminating their article are well considered.

The paper of greatest merit is undoubtedly that of Dr. Arthur V. Meigs, who records the results of his studies, extending over a number of years, upon the microscopical anatomy of the human heart. Dr. Meigs believes that the spaces in the muscular fibres in healthy hearts are true capillaries, and not the result of alteration of the tissue in the course of preparation. Dr. Charles P. Noble contributes a unique case of Cæsarean section; Dr. G. G. Davis a paper on the treatment of torticollis, with a description (and illustration) of an apparatus for its correction, and the histories of four cases exhibiting tardy hereditary syphilis of the bones. Dr. M. Howard Fussell records a case of aneurism of the aorta, with healed ruptures and

recent rupture. Dr. Willard writes on experiments in pneumonectomy and pneumotomy. He concludes that pulmonectomy performed for gangrene or for abscess of the lung offers better results than are possible in cases not treated surgically. Dr. Louis A. Duhring reports a case of dermatitis vesiculosa neuro-traumatica of the forearm, and Dr. Oscar H. Allis writes on ununited fractures. This article illustrates admirably the defects of certain methods of treatment, and offers valuable suggestions as to the more rational methods of procedure.

J. P. T.

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## NOTICE.

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### PRIZE ESSAYS

#### ON THE ACTION OF ALCOHOL AND ITS VALUE IN DISEASE.

THE American Medical Temperance Association, through the kindness of J. H. Kellogg, M.D., of Battle Creek, Mich., offers the following prizes:

1. One hundred dollars for the best essay "*On the Physical Action of Alcohol, based on Original Research and Experiment.*"
2. One hundred dollars for the best essay "*On the Non-Alcoholic Treatment of Disease.*"

These essays must be sent to the Secretary of the Committee, Dr. Crothers, Hartford, Conn., on or before May 1, 1893. They should be in type-writing, with the author's name in a sealed envelope, with motto to distinguish it. The report of the committee will be announced at the annual meeting at Milwaukee, Wis., in June, 1893, and the successful essays read.

These essays will be the property of the Association and will be published at the discretion of the committee. All essays are to be scientific, and without restrictions as to length, and limited to physicians of this country.

Address all inquiries to

T. D. CROTHERS, M.D.,

*Secretary of Committee.*

HARTFORD, CONNECTICUT.

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#### "CÆLIOTOMY" VERSUS "LAPAROTOMY" AS A SURGICAL TERM.

WHEN you perform an abdominal section and report the case, under what scientific term do you describe the operation? You probably call it a "laparotomy," because hundreds of operators are in the habit of using the same word, or its synonyme, in a dozen countries and languages.

Where did this term originate? You say it has a Greek derivation (the language of Greece having been the tongue of the first anatomists) and comes from two words, *λαπαρά*; and *τομή*, "to cut." Now, what did the Greeks call the *lapara*? It certainly was never the abdomen.

Did you ever look carefully into an ancient Greek anatomy to find out what the abdomen was really called in their language? The word *belly* appears ten times in the English version of the New Testament; did you ever note that the original Greek has the word *koilia*, and never *lapara*, in these ten places?

Rufus of Ephesus, a distinguished physician and writer, born A.D. 112, wrote a paper entitled "Names of the Parts of the Human Body," in which he has this significant sentence: "The *omphalos* (navel) is the hollow which occupies the middle



of the *koilia*, where we cut the veins that nourish the fœtus; the middle part of the hollow is the *akromphalon* " (top of the navel).

"Lapara" is a very old Greek term, and was applied in the time of Hippocrates to the parts between the short ribs and the iliac bone (the flank), and scores of old lexicographers have thus defined it. The operation for lumbar hernia, or laparocele, was a true laparotomy; and so, also, is that of lumbar or laparo-colotomy. The term *lapara* originally meant a hollow, and was for this reason applied by the early anatomists to the hollow of the waist. It was never used to designate a convexity.

The misapplication of the term "laparotomy" commenced in the year 1811 in the medical thesis of a Wittenberg student of the name of Fiedler, who wrote in Latin under the title "De Laporatomia." He had witnessed a true laparotomy performed, on October 17, 1810, upon a man of fifty with a diseased colon, as he lay on his right side. Fiedler wrote again in 1817, and took it upon himself to coin such distortions as "laparo-gastrotomia," "laparo-raphia," and "laparo-hysterotomia,"—his desire seeming to be to supplant the term "*gaster*," which really meant the belly, by the word "lapara," which a careful investigation would have taught him was not its Greek synonyme. The mystery is how an error of this kind ever made the progress that it has in leading the medical world astray.

*Koilia* being the Greek word for abdomen, the natural synonyme of gastrotomy in its old meaning is "cœliotomy," pronounced soft (se-le-ot-o-my). This is not a new coinage except as to its terminal, for we have long had *cœlio-paracentesis* for tapping the abdomen. The term cœliotomy has been adopted by Professor Säger, of Leipsic; by Dr. J. Greig Smith, in his "Abdominal Surgery;" by Professors Keene and White, in their "Text-Book of Surgery;" and by a number of well-known medical writers. This adoption gives us the compound terms *cœlio-hysterotomy* (Cæsarean section), *cœlio-hysterectomy* (exsection of uterus through the abdomen), *puerperal cœlio-hysterectomy* (Porro-Cæsarean operation), *cœlio-nephrectomy* (abdominal exsection of the kidney), etc.

What characterizes the present position of our condemned term is its wonderful tenacity of hold in the nomenclature of gynæcological writers who have admitted the error of its application in abdominal surgery. Two years ago I published a classical pamphlet on the subject and sent it to prominent writers in thirty different countries. I also sent a copy to every Fellow of one of our leading national medical societies just before it met in annual session in 1890, and their letters attested its effect upon their sense of reason. It convinced them that *lapara* was not the abdomen and that *koilia* was; but it did not break up the habit of use, as shown by the fact that four papers entitled "laparotomy" appeared in their *Transactions* for 1891, and the term was time and again made use of throughout the volume, but no one said "cœliotomy" as much as once. The old rut is so easy to run in, and the laparotomy wheel will get in. It took eighty years to propagate the error, and it will take time to correct it.

ROBERT P. HARRIS, A.M., M.D.

PHILADELPHIA, PA.

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EDITOR.

# INTERNATIONAL MEDICAL MAGAZINE.

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## ORIGINAL COMMUNICATIONS.

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### *ACUTE CATARRHAL SALPINGITIS VERSUS APPEN- DICITIS.*<sup>1</sup>

BY JOHN M. KEATING, M.D., LL.D.,

Colorado Springs, Colorado.

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THE right iliac fossa has occupied so much attention of late that I take the liberty of presenting to this society a short paper on a subject to which my notice has been called, but which, as far as I am able to judge from a search through the literature at my disposal, has received little or no attention. The surgical world, especially that portion of it that deals with abdominal work, seems to consider at once all evidence of acute disease in the right iliac fossa as dependent, more or less, upon affections of the appendix, and, indeed, one would say rightly so, after consulting the post-mortem records or the findings of operations in that locality. It was not until recently when my attention was especially called to a question of differential diagnosis, that my previous experience and reading failed me. The patient has improved in health and strength, and, whether or not the diagnosis was at fault, the treatment certainly has had a satisfactory result, and if I base my logical deductions on a very slim foundation for premises, my paper will be suggestive, and may lead to a discussion, and the probability of others confirming or refuting my views.

Some months ago I was asked to see, in consultation, the daughter of a prominent physician; the question having arisen as to the probability of

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<sup>1</sup> Read before the American Gynecological Association, September.  
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her having appendicitis, of which there seemed to be but little doubt, and if so, whether operative measures were indicated. Having lived in a large city where skilled surgical aid was at command, where exchange of views with men largely experienced in this direction was easily obtained, the responsibility upon me was a great one, and I sought counsel in my library. The physician in whose practice this case occurred had all the requisite knowledge, from experience and reading, that would enable one to make an accurate diagnosis, and after most careful examination, we concluded that our patient was suffering from some form of cæcal inflammation, possibly appendicitis; but in default of great severity of symptoms, and in the absence of evidences of fluctuation, operative measures were not at that time indicated. It is not necessary for me to dwell at length upon the symptoms presented, as my hearers will at once picture to themselves a case such as I will outline.

A girl of sixteen, previously healthy, not strong, the attack not a very acute one, though sufficiently painful to keep her prone, the abdomen not markedly distended, but exhibiting decided symptoms of a focus of local tenderness; though this, as we now recall, was lower down than the usual seat of appendicitis. Percussion was painful as we neared a point of intensity, which seemed also to be relatively lower, and the resistance greater as we reached this part also, but it extended somewhat to the right over the crest of the ilium, and we doubted the correctness of our finding from the extreme limitation of the area. There was a general hyperæsthesia and general nervous instability, with a decided rise in temperature in afternoon exacerbations, which might have been accounted for also, to a great extent, by her temperament and the altitude of this place (six thousand feet). The bowels, though not constipated, necessitated enemata of warm water or glycerin suppositories, and though they did not yield readily to salines, the constant expulsion of gas, with the absence of any evidence of any accumulation, showed that the lumen of the intestine was free. There was some vomiting and some nausea, and a great distaste for food; the tongue was coated, which possibly accounted for this. Our patient's symptoms greatly improved under the treatment of absolute rest, and in three weeks but little evidence remained of what we had looked to be a serious trouble. There was no question whatever that we had to deal with an inflammatory condition in this case, and though our patient improved to such an extent that she regained her strength and health, the attack was a severe one, and we congratulated ourselves that no suppuration had taken place.

Five months afterwards our patient was once more seized with the same series of symptoms, and possibly the local focus was more than ever deeper seated in the right iliac fossa. There also seemed to be a curious connection between its occurrence and an attempt at menstruation, which function had never been thoroughly established, though it had at intervals appeared very slightly but without pain. Possibly, also, the sensation of pressure in the rectum, which caused her annoyance, directed our attention to that part, and

though we believed that the case was one of recurrent appendicitis, and our anxiety was once more aroused, an examination by the rectum seemed indicated, and was made. This examination at once revealed what I believe to be the true nature of the case, and forms the subject of this paper. The uterus was found to be more perpendicular than it should be in a healthy girl, and larger than normal, tense and exquisitely tender to the touch. The left ovary was distinctly outlined, and the uterus was decidedly deflected to the left, and when attempting to examine the condition of the right ovary and tube, it was found that these parts were exquisitely tender, and it was absolutely impossible to define anything. So far as one could judge there was no distinct evidence of enlargement of the right ovary, but a resisting line that seemed to occupy the position of the right tube impressed one as being decidedly larger than its companion on the left side. I was convinced of an enlargement of the right tube, and felt confident, from my sense of touch, that here was the focus which gave rise to the symptoms presented, and the patient's statements corroborated this view. Dr. Jacob Reed confirmed this finding, and we agreed that our patient undoubtedly was suffering from an attack of acute catarrhal salpingitis. There was at this time also a vaginal discharge which resembled in appearance muco-pus, and I regret very much that we did not examine this under the microscope for tubercular bacilli, as it might have made the report of this case more complete.

The association of this attack with menstruation, the decided limitation of the points of tenderness to the right tubal region, which was distinctly made evident by the rectal examination, the fact that our patient was suffering from an acute febrile attack, which had no origin, as far as we could tell, outside of the pelvis, and the absence of the principal features of appendicitis, convinced us that our diagnosis was a correct one, and we immediately placed our patient upon such a treatment as we thought advisable,—namely, rest, hot vaginal and rectal irrigation, and a generous liquid diet, doing all we could to stimulate her appetite and relieve her mind from anxiety as to operative interference. We had the association of symptoms in the second attack very much as in the former one, though during the latter we had more distinctly an attempt at localization, possibly owing to the association at this time of an attempt at menstruation. Our patient gradually recovered; for three weeks she had fever, sometimes in the afternoon her temperature registered 103°. She was in bed for over four weeks, and, although the report of this case takes place at least three months after the attack, there has been no attempt at menstruation since.<sup>1</sup> She has gained in weight and in strength, and upon the most careful examination by abdominal palpation and rectal touch not a vestige of this trouble remains.

It is not necessary for me to go into particulars in regard to the diagnosis

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<sup>1</sup> Since this paper was read menstruation has become established, and the patient is reported as being in excellent health with no recurrence of pain.



of the various forms of appendicitis in order to bring into greater relief the symptoms which are set forth in this case, and to show their distinction. I desire merely to call your attention to probably the latest paper on the subject of appendicitis, that by Roswell Park, in Hare's "System of Therapeutics." He gives the symptoms as follows: "The most common first symptom is abdominal pain, varying in severity, which is sometimes referred to the whole abdomen or to the epigastrium or umbilical region. If the pain have been at first diffuse, it begins after a few hours to be limited, and the exact locality of the greatest pain and tenderness is now of the utmost importance." He then calls attention to McBurney's point,—“This sign is of pathognomonic importance, since no other acute disease presents it.” Whether or not all accept this view, it is not for us to say; it is of sufficient importance and has been recognized as such by so many that we can use it as an aid to differential diagnosis. I may call attention to the fact that our patient complained of pain when pressure was made deep in the pelvis, and also in the right lumbar region, upon firm manipulation, and that she expressed herself as feeling the same sensation, though very much aggravated, when the rectal examination was made and the finger carried towards the right of the uterus. It must be borne in mind that the case in point, judging from the delicate appearance, rapid growth, and irregularity of menstruation, was suffering from imperfect uterine development, and that the usual catarrhal endometritis which is found in such cases, and which has its analogy in the undeveloped nasal passage and Eustachian tube, might probably, from exposure to cold, from constipation, or from unusual exertion, extend itself to one or other tube and be the cause of catarrhal salpingitis. The only other form of salpingitis which we might consider in this connection would be the tubercular, but as our patient has not the least suspicion of any tubercular disease, her gain in strength and weight would lead us to exclude this condition. As we shall see further on, some writers believe that tuberculosis is more common than we have the least idea of. I cannot believe that simple tuberculosis affecting the tubes alone, without extension or without producing attacks of decided peritonitis, and apart from tuberculosis from other organs, especially the lungs, is of common occurrence. Wylie<sup>1</sup> tells us that “certain congenital deformities may lead to disease of the tube, such as occlusion of the vagina or os uteri. The menstrual blood not finding an outlet may distend the uterus, and finally be forced into the tubes, and be followed by irritation sufficient to cause adhesion and occlusion of the fimbriated extremity.” He goes on to say, “In imperfectly developed girls and women, the mucous lining in its degenerated state becomes an easy prey to catarrhal disease, and an endometritis may extend to the tubes. But, in my own experience, salpingitis is rare when developed in virgins, to a degree which necessitates operation for removal, and when I find enlarged and diseased tubes in

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<sup>1</sup> American System of Gynæcology, vol. iii. p. 913.

these patients I expect to find tuberculosis." But he goes on to say that, of course, he excludes cases where pessaries have been used. He also tells us "that a careful study of the cases which he has operated upon, at that time one hundred and thirty, only ten per cent. could claim to be virgins." Another point which I find in this article is made as follows: "No attempt has been made to define the symptoms of the different kinds of salpingitis aside from the difficulty of doing so; practically we need only inquire whether salpingitis exists. . . . Catarrhal salpingitis without adhesion or occlusion of the tubes cannot be diagnosticated by the sense of touch, and is usually associated with catarrhal endometritis, sufficient to account for all the special symptoms. It is very doubtful if it can be diagnosticated at all." He also says, "Hennig, Bandl, and other German authors claim that catarrhal salpingitis is a very common disease." He goes on to tell us, "Tuberculous disease of the tubes was formerly regarded as very rare, but that recent observation shows that it is more common than supposed, with the presence of a characteristic bacillus, and that Winckel states that the tubes alone are affected in nearly fifty per cent. of the cases of tubercular disease of the genital tract." I think we can exclude the question of tuberculosis entirely.

I will now make a few quotations from the article on diseases of the Fallopian tubes, from the recent work of J. Bland Sutton. In speaking of acute salpingitis he states, "Many mild attacks may be conveniently described as 'catarrh of the tube,' and like a nasal or gastric catarrh subside and leave no trace. When the inflammation is sufficiently intense to swell the ostium, permanent damage results, and if, as is so commonly the case, both tubes are affected, they remain throughout life functionless, and often a source of great danger." I quote this statement as, from my understanding of it, Dr. Sutton evidently believes that one tube can be affected without the other, in a simple case of mild catarrh. Certainly in my own patient the left tube was practically normal. Again quoting from Dr. Sutton, under the heading of intermittent hydrosalpinx,—"It is a fact of some interest that the uterine end of the Fallopian tube is rarely obliterated in salpingitis, of course, the tumidity of the mucous membrane would be sufficient to obstruct the discharge of fluid from the tube to the uterus." In Chapter xxii., Sutton explains this form of catarrh as follows: "The mucous membrane of the Fallopian tubes is liable to inflammation of a simple type, conveniently called *catarrh*, which causes it to become vascular and tumid, and at the same time increasing the amount of secretion furnished by its glandular recesses. The tumidity of the mucous membrane leads to temporary obstruction of its lumen, and the distention of the tube consequent on the retention of increased secretion produces a considerable amount of discomfort, sometimes amounting to actual pain. Catarrh of this mild type is apt to be recurrent, and is often confounded with oöphoritis or the more serious forms of salpingitis." He makes no mention of fever in such cases, but, of course, where there is catarrh of an acute nature



we naturally have fever; and the kind of fever which is usually attendant upon catarrhal types of disease.

This author dwells at length upon the fact that cases frequently diagnosed as oöphoritis are cases of catarrhal salpingitis, and in speaking of the pain experienced by such, he says, "The pain experienced by these patients may be explained upon the same principles as that experienced in relapsing appendicitis. The tumefaction of the mucous membrane obstructs the communication between the appendix and the cæcum; this leads to a distention of the appendix in consequence of the accumulation of mucus furnished in the glands. The distention of the obstructed appendix causes pain. As soon as the inflammation subsides sufficiently to allow the blockade to be raised, tension is relieved by the escape of the retained fluid into the cæcum. This matter has been considered somewhat in detail, because the slightest tender swelling on either side of the uterus is frequently diagnosed as oöphoritis. Such a diagnosis is based on clinical observation, not on anatomical evidence; on the other hand, we have specimens that absolutely support the view that the distention of an occluded mucous canal is invariably accompanied by intense pain and tenderness." It is not necessary for me to dwell in this paper upon those advanced cases of catarrhal salpingitis which have become chronic, and which, according to Cushing, have recesses and pockets found in cross section in the mucous membrane that burrow their way into the muscular wall of the tube, and possibly, either from continuity or contiguity of structure, or through lymphatic channels, produce a peritonitis or pelvic adhesions. Nor shall I dwell upon the fact that usually in tubal diseases, those especially of a chronic character, the ovaries more or less participate, though I cannot see why an acute catarrhal salpingitis cannot exist without involving the ovary. Chrobak (*The Annals of the Universal Medical Sciences*, 1892), under the head of simple salpingitis "catarrhalis" or endosalpingitis, tells us that "it is accompanied with swelling and redness of the mucous membrane and increased secretion. In such cases we find shedding of the epithelium and transformation of the mucous thickening of the villi, and slight infiltration of their walls, the tubes, therefore, showing a general swelling and being sensitive to pressure. These alterations are most frequently caused by extension of the inflammatory processes from the endometrium." It is not difficult, to my mind, to believe that with undeveloped uteri, where establishment of the menstrual function has not taken place, but where, naturally at the age of puberty, there is the tendency to the monthly influx of blood with nervous phenomena, which accompany menstruation, that we should have hypersecretion of the uterine mucous glands. A retention of this material, owing to the difficulty of its passage through the infantile internal os and cervix, and the consequent catarrhal inflammation which such obstruction would bring about, the endometritis would finally extend to the tubes. The only uncertainty which I have in this matter relates to the question of why one tube should be affected and not the other, but this, of

course, anatomical irregularities may account for : one tube may be more or less tortuous than the other, and consequently its secretion may be more readily retained.

We have the analogy of other tubal passages to support these statements, and especially the Eustachian tube. Landau<sup>1</sup> says, "The inflammation may be caused by extension of the inflammation from the intestines, as in cases of typhlitis, dysentery, and typhoid fever." Further on, when speaking of the diagnosis of chronic pyosalpinx, he says, "When the affection is on the right side it is often impossible to distinguish from a para- or perityphlitis or *appendicitis*." Of course, this refers to chronic trouble, and seems scarcely pertinent to the subject of this paper, which refers to acute catarrh.

Terrilon says nothing about appendicitis in speaking of differential diagnosis. Pozzi only mentions perityphlitis in connection with the diagnosis of "phlegmon of the broad ligament." Dr. W. S. Bagot writes me that he knows of no paper or reference to this subject, after quite a search through literature. He makes reference to a paper by Dolores,<sup>2</sup> in which he mentions some cases of adhesive enterocele which gave symptoms like salpingitis, but as the reference is not accessible, he cannot say whether he goes into the question of appendicitis or not. Neither Schroeder nor König mentions the subject.

In thus bringing the subject of acute catarrhal salpingitis before you, I feel that, though I have exhausted all the literature at my command to throw light upon my paper, there are undoubtedly numbers of unwritten cases that have occurred in your own practice that justify the conclusions I have arrived at, and that prevent me from making any claim to originality. Certain it is, that there is no reason why we should not have a simple acute catarrhal inflammation of the Fallopian tubes, non-tubercular and non-specific, any more than that of any other mucous canal, and that this condition may give rise to pain, local distress, fever, and its accompaniments; and owing to this fact it may be confused with a very much more serious affection, namely, that now generally grouped under the term *appendicitis*. The differential diagnosis is one of greatest importance, and the lesson that this case has taught me is the importance of a thorough rectal examination to establish this. Hereafter, in all cases of supposed appendicitis in young girls, I shall insist upon this method. I would also urge the importance of this examination being made under anæsthesia, for obvious reasons.

In regard to the question of treatment of acute catarrhal salpingitis, my paper has been sufficiently long, without considering this in detail. I am a firm believer in uterine drainage, in supporting the uterus by means of properly placed tampons, in relieving pelvic venous engorgement, in depletion by means of purgatives, and in the use of hot water for

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<sup>1</sup> Archiv für Gyn., Hft. 1, 1891.

<sup>2</sup> Nouvelles Archives d'Obstet. et de Gyn., August, 1889.



vaginal and rectal douches, and in curing the endometritis. I also would insist upon *rest* as of primary importance. Such excellent results are reported from the use of alkalies in affections of other mucous membranes that I would suggest their free use in cases of this kind. Lawson Tait, in his book on abdominal surgery, speaks of the value of the potash salts in pelvic engorgements, and my experience has been the same. In all these forms of disease, where also the mucous membranes have been involved, excellent results follow the use of chlorate of potassium, bicarbonate of potassium in large doses, and chloride of ammonium.

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### *THE USE OF FORCEPS, ESPECIALLY THE AXIS-TRACTION FORCEPS.*

BY WILLIAM NAGEL, M.D.,

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EVERY physician who, after fruitless attempts with the forceps, has been obliged to perforate a living child, will have felt the want of an instrument for extraction by which the life of the child can be saved without doing harm to the mother. The ordinary forceps, originally designed for the head low down, can, however, be applied pretty well in other positions of the head, but the extraction is the more difficult the higher the head is lodged in the pelvis. One glance at the course of the pelvic canal immediately explains this: the perineum, especially the coccyx, interferes with the depression of the straight rigid handles of the forceps as far as is necessary in order to extract a head situated at the entrance of the pelvis, in the direction of the pelvic axis. It is well known that this consideration has already frequently caused physicians to apply contrivances to the forceps by which it was possible to effect extraction in the direction of the axis. Tarnier<sup>1</sup> deserves the credit of having first proposed the most important modification of the forceps. The excessive praise of the new instrument and the endeavor to place the ordinary forceps in as bad a light as possible, at first acted as a drawback to its adoption, and may serve as an explanation why Tarnier's forceps were most violently attacked by numerous authors (Pajot,<sup>2</sup> Stolz,<sup>3</sup> and others), and could not gain an

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<sup>1</sup> Tarnier, Description de deux nouveaux forceps, Paris, 1877. Cf. Annales de Gynécologie, 1877, p. 201; Considérations sur le Forceps, Annales de Gynécologie, 1882, vol. xvii. p. 401.

<sup>2</sup> Pajot, Annales de Gynécologie, 1877, pp. 162, 321.

<sup>3</sup> Stolz, Les nouveaux forceps du Docteur Tarnier, Archives de Tocologie, 1877, p. 321.

entrance in most of the German universities. Moreover, the new forceps were cumbersome and constructed with unnecessary complications which prevented their being employed in obstetrical instruction. But as the modification of Tarnier was based on a correct and generally accepted principle, I decided to examine the new instrument, and have industriously collected observations on the axis-traction forceps for several years while acting assistant of Professor Dr. Gusserow in the Women's Clinic of the Royal University of Berlin. Basing my conclusions on these observations, I am now convinced that the hard sentence quite recently passed on the axis-traction forceps by some German obstetricians of high standing is an unjust one.

The new forceps cannot be put aside from theoretical reasons, for it indeed deserves earnest consideration, and I feel convinced that it will thereby gain an increasing number of true friends. Which of the numerous modifications of Tarnier's forceps will be preferred may be left to the personal judgment of those who intend to use the same. Success does not depend on the use of any one pattern, as long as Tarnier's principles are preserved in the construction. I have had personal experience with only the forceps of Tarnier, Breus,<sup>1</sup> and A. R. Simpson,<sup>2</sup> and I prefer the last mentioned.

Against Tarnier's instrument, even the most recent model with removable traction rods, I offer the objections that it is made too clumsily and the head curvature is too small, inasmuch as the largest distance between the two blades amounts to only seven centimetres. Besides, the large Levret lock is a superfluous appendage and very much in the way if it be desired to examine the position of the head after the forceps have been applied; and, furthermore, the locking of the traction arrangement is unnecessarily complicated. Breus's forceps are probably the simplest of the modern instruments, and differ from the ordinary forceps in this only, that the handles above the lock are jointed by a plate lock to the fenestræ. This allows a limited mobility of the head in the vertical direction. A simple consideration of the anatomy of the pelvis, however, shows that with Breus's forceps no more traction can be applied in a backward direction than with the ordinary instrument, because the traction is made with the handles, and the perineum, especially the coccyx, does not permit of sufficient depression of the handles. A. R. Simpson's axis-tractor, made in a light and convenient form, fulfils in every particular the rules laid down by Tarnier; it is six centimetres shorter than Tarnier's, but its length (thirty-five centimetres) suffices completely for the grasping of a head within or above the inlet of the pelvis. Furthermore, it possesses a large curvature for the head like that of the old Simpson forceps (the

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<sup>1</sup> Breus, *Die Beckereingangszangen*, Wien, 1885.

<sup>2</sup> A. R. Simpson, *On Axis-traction Forceps*, *Edinburgh Medical Journal*, 1880, p. 245, ff.



largest distance between the two fenestræ is eight and a half centimetres), and this I consider especially valuable when one attempts to get hold of a head in a high position and in an unfavorable diameter. Notwithstanding all these advantages, A. R. Simpson's forceps has yet a certain degree of complexity, to which, however, one can easily become accustomed, and my observations have proved that it can be kept aseptic in spite of its numerous joints. For several years I have subjected my instruments to the following method of disinfection: Immediately before use I boil them for from five to ten minutes in the house of the woman to be confined, and then put them into a one- to two-per-cent. carbolic acid solution until the other preparations are completed. After use they are cleaned and immediately boiled for a considerable period of time. If one takes these precautions, I think it of little importance in what kind of a receptacle the instruments are kept in the interim. Before the application of the forceps the external genitals of the woman are washed with soap and water, and the vagina is douched with a one- to one-and-a-half-per-cent. carbolic solution. I intentionally avoid strong solutions or other irritating fluids, especially sublimate, the most important thing being that the physician, his instruments, and the nurse should be scrupulously clean.

As far as the technique of the application of the axis-traction forceps is concerned, the same rules governing the application of the ordinary forceps apply to the one under consideration. The traction-handle, which is appended to the left blade, does not inconvenience. Before the insertion of the right blade, the right traction-rod must be raised and fastened by the fixation screw in order to prevent its falling during the introduction. The locking of the forceps, which must be done before the traction-rod is hooked into the traction-handle, is done as in the ordinary forceps. During the extraction the traction-handle must be left absolutely alone, and traction is to be made with the cross-bar only. It is necessary to regulate the strength with which traction is made posteriorly according to the position of the head in the individual case, or, as Simpson prefers, to keep the traction-rods parallel with the shanks.

In case of high position of the head, following the teaching of Gusserow for application of the high forceps in general, and contrary to the teaching of Tarnier, I always apply the forceps in the transverse diameter of the pelvic inlet without reference to the position of the head. All depends upon this, viz.,—that the tips of the blades grasp the skull beyond its convexity so that the blades receive a sufficiently solid hold for the traction to be used. If, as is customary in Germany, the forceps are to be applied in the dorsal position, it is advisable, if we are dealing with a high head presentation, to place the woman on her back with the buttocks elevated. If the forceps have been introduced according to the English custom, the patient being in the left lateral position, this position is to be maintained throughout the traction manipulation.

It is not my present purpose to go into further particulars in regard to

the superiority of the Tarnier forceps. For additional information, I would refer to a previous article,<sup>1</sup> but I desire to repeat here that in my opinion it is quite possible to extract the head in the direction of the pelvic axis by means of forceps modelled after the principle of Tarnier, whose traction-rods have a perineal curvature, although by so doing, as Pajot has strikingly demonstrated, we must renounce the idea of mathematical accuracy. The success of this instrument, however, depends not alone upon this, but also upon the application of great force which it permits and which at the same time limits the danger of its use. Since both hands may be applied to the cross-bar of the traction-handle, traction may be made far more conveniently with the axis-traction forceps than with the ordinary instrument, and the accoucheur also experiences a sensation as if the operation were progressing more easily. It is a great delusion, however, to conclude from this as some of the advocates (Ingersler<sup>2</sup> among others) of the axis-traction forceps do, that less force must be applied. It is of great importance to have it understood that a forceps operation in a pelvis disproportionate in its dimensions, especially in case of a high position of the head, is an operation necessitating the use of a considerable amount of strength. Attempts have been made experimentally (Hubert, Delore, Foulin) to discover how great a force may be applied without bursting the bony wall of the pelvis. But, as Lachs<sup>3</sup> well says, we are dealing in most cases with a pelvis altered by pathological conditions, whose power of resistance cannot be previously estimated, and I would deem it wrong to use these experimental results, which, moreover, have reference to the bony pelvis *only*, as criteria for the amount of force it is permissible to apply. In most cases the forceps are not applied until the maternal soft parts have, by the long-continued labor, suffered considerably in their power of resistance. It is, therefore, left to the discretion of the physician how far to proceed in a given case, and, therefore, as Howard<sup>4</sup> also emphasizes, the axis-traction forceps may develop into a dangerous instrument; especially, in my opinion, is this the case if the accoucheur is misled by the erroneous idea that, because he finds the strain a less severe one, he has also been applying proportionately less force than he would have found necessary in the use of the ordinary forceps. By virtue of its manifold joints the axis-traction forceps permits of very extensive motion, by which means, if the rules above mentioned are followed, and the traction-handle, which is freely movable in all planes, is used exclusively, the element of leverage is entirely dispensed with and the instrument is used for traction *only*. In dispensing with the action of leverage, the danger of the instrument is ap-

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<sup>1</sup> W. Nagel, Erfahrungen über die Anwendung der Achsenzugzange, Archiv f. Gynäcologie, Bd. 39.

<sup>2</sup> Ingersler, Bemerkungen, u.s.w., Centralblatt für Gynäcologie, 1889, S. 268.

<sup>3</sup> Lachs, Die Achsenzugzange mit besonderer Berücksichtigung der Tarnierischen Zange, Stuttgart, 1881.

<sup>4</sup> Howard, Annales du Gynécologie, 1882, p. 126.



preciably lessened, and since, moreover, traction is made in the direction of the pelvic axis, the axis-traction forceps may be considered an instrument affording greater protection, providing the rules laid down above are adhered to, than is obtainable in the use of the ordinary forceps. It would, however, be a great mistake to tax the traction force to the utmost; for, to demand that the axis-traction forceps must in every case terminate the labor, whatever the cost, one would, without a doubt, meet with ruptures of the symphysis and other lacerations of the maternal pelvis. I have yet to meet with such an accident among my cases.

In order to judge the value of the axis-traction forceps the high forceps operation must be distinguished from that employed when the head is low down in the pelvis. In the latter case the axis-traction forceps does not, as such, offer any material advantages. However, since at this stage of labor neither mother nor child is endangered by its use, this forceps may confidently be applied, especially since the traction-handle offers a very convenient hold both for traction and for the evolution of the head over the perineum. Even though the head be in the pelvis, extraction may, as is well known, at times be very difficult, as in the case of a narrow pelvis, a large child, or an unfavorable position of the head. In the majority of cases the indication for the termination of labor is reached when the head is still in the body of the pelvis near the outlet, but before it has made its last rotation into the vertical diameter of the pelvic outlet; my own observations have demonstrated this.

If the physician has not been able to follow the course of labor from its incipency, it is usually the case, especially on the Continent, that he is consulted when the midwife and family have found the labor of too long duration. Therefore it is impossible in most cases, because of the tumor that involves the whole scalp, to determine the direction of the sagittal suture and the position of the fontanelles. The external examination, barring possibly the foetal heart-sounds, leaves one also in the lurch, because the strongly contracted uterus does not permit the foetal parts to be distinguished through its walls, unless it be the case that the lower segment of the uterus has been so drawn out that here it becomes possible to feel something of the child's anatomy. In all such cases I introduce the forceps in the *transverse* diameter of the pelvis, and it is then possible, partly by observing the position of the blades on the head during its expulsion, and partly by observing the indentations caused by the blades, to determine later the position of the head at the moment of operation. I agree with Olshausen<sup>1</sup> that the pressure indentations in particular afford a reliable expedient for accomplishing this purpose.

The following statistics I quote from notes taken immediately after labor

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<sup>1</sup> Olshausen, Ueber die nachträgliche Diagnose des Geburtsverlaufs aus den Veränderungen am Schädel des neugeborenen Kindes, Sammlung Klinischer Vorträge, herausgegeben von R. Volkmann, No. 8.

in fifty-two consecutive *low-forceps* operations: In seventeen labors, part of which were undertaken comparatively early, thus permitting the rotation of the head to be followed through its various stages, it was still possible to make a definite diagnosis and to act accordingly. Of these seventeen there were two cases in which the head was situated low and in the transverse diameter of the pelvis, ten in the oblique and five in the vertical diameter. In thirty-five cases the large scalp tumor prevented my obtaining a definite picture of the position of the head, and consequently I applied the forceps in the transverse diameter of the pelvis. In five cases only out of these thirty-five were the marks of the forceps visible on corresponding sides of the head (from temple to outer canthus of eye), thus testifying that at the moment of operation the sagittal suture lay in the vertical diameter of the pelvis. In one instance the case was one of low-transverse position of head (left blade over right half of face, right blade over occiput); in the remaining twenty-nine cases I found the pressure marks of one blade on the frontal bone as far anteriorly as the orbital ridge or even to the orbit, and those of the companion blade over the ear or behind it as far down as the neck; in those cases in which the head was much extended (consequently lowered), as in all generally contracted pelves, I found the marks of the companion blade infringing more upon the face, up to the region of the angle of the lower jaw. In seventeen cases the right blade had grasped the right frontal bone, and in nine cases had the left blade grasped the left frontal bone; twice the right blade lay over the left frontal bone, as I convinced myself during expulsion of the head, and in one case the left blade was found over the right frontal bone. I would further state that I have considered only those indentations which were found most prominently marked,—i.e., those caused by the anterior curvature of the blades.

The operations above referred to were performed partly with the axis-traction and partly with the Naegelé forceps; thus it is seen that in none of these cases did a rotation of the head take place either while locking the blades or within the forceps during the application of traction. On several occasions, however, while I was using the axis-traction forceps, I have observed that during traction the handles of the transversely-applied forceps inclined to one or the other side, giving evidence that the head together with the forceps was making a corresponding rotation. Do not suppose that the frequent oblique positions of the head which I have encountered were the results of early operative interference. Adhering to the teaching of Gusserow, I applied the forceps only when the indications for its use were presented. Of the fifty-two cases above cited, in twenty-five the condition of the mother (fever, acceleration of pulse, high position of contraction ring, eclampsia, vomiting with every pain, œdema of the external genitals) served as provocation for my interference; in thirteen cases the indications for interference were on the part of the child (prolonged acceleration of heart-sounds, escape of meconium); in five cases, on the part of both mother and child. In nine cases of old primiparæ, the



forceps were applied after the head, long after the bursting of the amnion, had remained for several hours unchanged in the pelvis, the pains being deficient. I feel convinced that every physician who has made accurate observations as to the position of the blades in his forceps operations will corroborate the statement which I have made, viz., the frequent delay of the head in the oblique diameter of the pelvis. It is evident that the forceps operation will be found more difficult in all cases of an oblique position of the head than in those cases in which the sagittal suture lies in the vertical diameter of the pelvic outlet. The oblique position of the sagittal suture is evidence that the head is still in the body of the pelvis; the resistance offered by the pelvis is still to be overcome in part by means of the forceps; the soft parts at the pelvic outlet, not yet expanded by the impinging head, call for most careful attention at the hands of the operator. In such cases the traction arrangement of the axis-traction forceps serves in the same excellent manner as in high head positions, and permits a convenient view of the perineum.

At any rate, it is unnecessary to burden one's-self with two forceps, or, as Lusk<sup>1</sup> and Thomas<sup>2</sup> advise, remove the axis-traction forceps as soon as the head has descended upon the floor of the pelvis, and complete the delivery by means of the ordinary forceps.

Simpson's<sup>3</sup> suggestion that the accoucheur should familiarize himself in less difficult labors with an instrument which may serve equally well in the most difficult cases, induced me primarily to apply the axis-traction forceps in all cases, numbering eighty up to the present. Having gradually accustomed myself to the excellent traction forceps, I could now hardly dispense with it. I have used the axis-traction forceps in fifty-one cases of *low* position of the head, forty-one of these being in primiparæ; of the forty-one, twenty-seven ranged in age from twenty-five to thirty-five years, and five were over thirty-six years of age. In thirteen cases delivery was made difficult by a narrow pelvis, and in five cases by an extraordinarily well-developed child. In three cases I encountered brow presentations, in two a transverse position of the head low down, and in one a face presentation. Of all the cases of low position of the head in which the axis-traction forceps had been applied, not one terminated fatally, nor did one become seriously ill in childbed; in seven cases transient disturbances (fever and ill-smelling lochia) developed, as may happen in any normal labor. This is evidence sufficient that the axis-traction forceps may easily be kept aseptic if the precautions mentioned above are adhered to.

As has already been said, the infant's life is *not* endangered in the ap-

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<sup>1</sup> Lusk, A Modification of the Tarnier Forceps, American Journal of Obstetrics, 1880.

<sup>2</sup> Thomas, Transactions of the American Gynæcological Society, Annales de Gynécologie, 1882, p. 130 (übersetzt von Rodet).

<sup>3</sup> Simpson; Again on Axis-Traction Forceps, Edinburgh Medical Journal, 1883, p. 290.

plication of the axis-traction forceps to a head *low down*. If circumstances permit timely operative interference, one may be assured, other things being equal, of the successful delivery of a living child. I have thus far used the axis-traction forceps in twenty-nine cases of high position of the head (Tarnier's forceps once unsuccessfully, Breus's once, Simpson's axis-traction forceps twenty-seven times). In four of the cases delivered with Simpson's instrument, so small a segment of the head had entered the narrowed pelvic inlet that it remained fixed there as a result of the contraction of the uterus only, and therefore simulated a certain degree of mobility. It is self-evident that the application of the forceps under such circumstances is a difficult matter; if, however, the head has become engaged in a sufficiently favorable manner to be grasped with the forceps (which is best done if the occiput is presenting), and if the head is not too large and hard, a successful issue may still be counted upon.

Of the twenty-seven cases there was one such case in which the forceps yielded no result; the head presented at the pelvic inlet, the brow being flexed, the sagittal suture lay in the right oblique diameter, the large fontanelle to the right and posteriorly. Though successful in applying the forceps to this abnormally large and hard head (it was the eleventh child), the blades could obtain a hold over brow and face only; with each attempt at traction the brow sank so that the face became perceptible to the right posteriorly, and the forceps, losing their hold, began to slip. I attempted to force the occiput into the pelvic inlet with my hand, and to push back the brow; in spite of repeated attempts all my efforts were futile, and since the cord, which was coiled around the neck and lay in a large knot beside the head, had already interfered with the action of the forceps and had become pulseless, I perforated the child's head. The mother made an uninterrupted recovery. In eighteen cases the head had become engaged to about one-third or one-fourth its extent in the pelvic inlet, and in five cases about one-half. In all these cases I was able to deliver the head undiminished in size, though it was not always possible to save the child's life. I encountered seven cases in which the infants were dead when born. There were four cases in which the infant head showed evidences of fracture of frontal or parietal bone, three cases of visible impressions on that portion of the frontal bones bordering on the fontanelle, four cases of facial palsy, three of subconjunctival ecchymoses, eight of scalp abrasions and other minor injuries of scalp, and eleven cases in which there were no marks of injury to the infant head.

I would refer to a previously-published tabulated statement for information concerning the relation of head position to the susceptibility to injury. I wish merely to emphasize here that the most important injury—viz., depression and fracture of the posterior part of the frontal (or parietal) bone—may occur when traction is applied to a head whose sagittal suture lies either obliquely or transversely, and whose occipital protuberance is prominently developed. Four of the seven still-born infants were at the



time of operation in peril of their lives, and could not be saved with the forceps. In all cases I was dealing with moderately-contracted pelves, and in only one was the contraction considerable in degree, this being a generally contracted, flat, rachitic pelvis (sp. 24; cr. 25; ext. conjug. 17; diag. conjug.  $9\frac{1}{2}$ –10 centimetres). Four years ago, by performing version, I delivered this individual of a living child, which was presenting by the head complicated with prolapse of one arm. Four other deliveries in the same individual, some of which were previous to the case cited, were executed either by aid of the forceps or by version, and in every case the child was still-born. This last time, the woman having been in labor four days, and being in a state of fever, the bag of waters having ruptured on the second day, it was decided to interfere; the axis-traction forceps were applied to the head, which had not yet engaged, and I succeeded in delivering a well-developed, mature, though somewhat diminutive living child, which thrived splendidly. The progress of childbed was slightly interfered with by a previously existing bronchial catarrh, slight cough, and mild fever. Three weeks after delivery the patient had left her bed and was in very good health. Of the other cases, among whom there were eleven primiparæ, one, who upon being given over to our care, already had a high fever and a pulse of 150, died of acute sepsis. Of the remaining, despite the fact that there were among them some very difficult deliveries, all recovered, and in five only mild ephemeral disturbances occurred, slight rises of temperature, or foul-smelling discharges. There were four cases of lacerated perineum of the second degree, six of the first degree, and a four to five centimetre tear of the vaginal wall.

To judge from my own observations, I would say that the axis-traction forceps are productive of most satisfactory results in cases in which the condition of the mother demands a termination of labor, if associated therewith the head of the child has been engaged in the pelvic inlet for a long period, and if the product of conception is living.

As far as the child is concerned, the axis-traction forceps is a comparatively dangerous instrument, but even though a certain percentage of infants succumb to the injuries received, it is certainly preferable to give them the benefit of the chance offered by the axis-traction forceps in such difficult labors than to resort to perforation, which is the only other mode of delivery. I do not contend that a successful outcome is in many cases not possible with the ordinary forceps. I have used both forceps, the ordinary and the axis-traction forceps, in a considerable number of labors (while practising in Berlin), the ordinary forceps in seventy-one cases, the axis-traction in eighty; so that I feel myself in a position to draw a comparison between the two instruments, and it is my conviction that a conservative operator who realizes the dangers of the forceps, and knows when to avoid its use, will be able to accomplish delivery much more easily, and with less danger to the mother, in the employment of the axis-traction forceps, especially that of Simpson.

## NOTES ON GUAIACOL IN THE TREATMENT OF PULMONARY TUBERCULOSIS.<sup>1</sup>

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GUAIACOL, an ethereal product of beechwood which is soluble in two hundred parts of water, was first recommended for its efficacy in tuberculous processes, in 1880, by Professor Max Schüller, of Berlin. The claim of beneficial results has since been upheld by him in several publications, mainly in a book published in 1891, and in an article in Eulenburg's "Encyclopædisches Jahrbuch," for 1892, a proof-sheet of which has been kindly sent me by the author. It is as just to him as it is convenient to me, while passing, to give you the results of my own experience with the drug, and to detail to you the main points insisted upon by him. From 1880 to 1891 he treated, through all these eleven years, ninety cases of tuberculous disease. Of these four are said to have died before 1891, seventy were cured, sixteen were still under treatment in 1891; part of them are said to have recovered since. As a rule, four doses were administered daily, from two to three drops each to children, from three to five to adults. These doses were mostly given either in sugar water or milk, or meat broth, or wine; not in pills. Nor does he administer them in capsules, because the undiluted guaiacol may irritate the mucous membrane. Injections into the subcutaneous tissue or the muscles he makes only in cases of necessity; for such the vehicle would be either glycerin or oil.<sup>2</sup> Schüller refers to Gregg, who gave guaiacol in enemata. It can be used in inhalations. A solution of one in from six hundred to a thousand may be employed for that purpose in catarrh of the pharynx, nose, and trachea, either for isolated cases or in larger rooms where "surgical" cases may congregate. Eighteen cases of pulmonary tuberculosis are said to have recovered. The remedy was given persistently, through many months or several years. It was supplemented according to indications, mainly in the beginning of the treatment, with expectorants, cardiac stimulants, and antipyretics; also, for the purpose of

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<sup>1</sup> Read before the American Climatological Association, June 24, 1892.

<sup>2</sup> Subcutaneous injections have also been recommended by L. Polyak (Pesth. Med. Press, No. 43, 1889), who eulogizes them, but was forced to discontinue them through the refusal of the patients to submit to them because of their painfulness; Diamantberger (Gaz. Hôpit., No. 142, 1890), Schetelig, R. Robertson (Brit. Med. Jour., Nov. 14, 1891, p. 1040), and Picot, of Bordeaux (Sem. Médic., March 4, 1891), who employs one part of iodoform and five of guaiacol in one hundred parts of sterilized olive oil.



inhalation, with turpentine or camphor. Seclusion in rooms or sojourn in institutions was not insisted upon; the remedy was employed in all conditions of life and occupations. Invariably, appetite and strength increased, expectoration became easier, cough became less, pus was gradually replaced by mucus, and the results of percussion and auscultation were more favorable. It took a long time, however, before any visible effect was obtained in regard to the number of bacilli present in the sputa. Many cases of surgical tuberculosis improved and recovered without an operation; still, as a general rule, local treatment and the use of guaiacol were both employed. The latter was administered, with good effect, in scrofulous eczema with bacilli, for caseous glands, and for tubercular bone. A case of caries of the petrous bone, complicated with meningeal symptoms, got well, after having been operated upon, under the use of guaiacol. No renal tuberculosis was experimented upon. Tuberculosis of the testicle is not recommended as a safe subject for experimentation. For injection into the tissues, guaiacol was dissolved in water, or combined with a ten per cent. mixture of iodoform with glycerin. A bad lupus of the ear was first treated with the actual cautery, then the injection was made. The first result was cedematous swelling and pain; after that, recovery took place uninterruptedly. The same injections were made into the capsules of joints and tubercular bones, particularly of the hip; also into the recent wounds of resections and excisions, which would heal without drainage being resorted to.

R. Seifert and F. Hölscher (*Berliner Klin. Wochenschr.*, No. 51, 1891, and No. 3, 1892), recommend the internal administration of the guaiacol carbonate in place of guaiacol. In their publication they refer to Sahli, who objected to the internal use of creasote (*Corresp. f. Schweizer Ä.*, 1887, No. 20), because of its uncertain percentage of guaiacol, of its combination with derivatives of the poisonous pyrogallie acid, and of its local caustic effect. Indeed, Bourget published cases in which such a circumscribed cauterization could be proven. That is why Sahli turned to guaiacol, which he prescribed either in capsules or in a slightly alcoholic watery solution. He admits, however, that even his purest guaiacol contains but ninety per cent. of the genuine substance.

Seifert and Hölscher assume, without, however, having demonstrated it to be a fact, that guaiacol carries with it a similar local danger. Their carbonate is claimed to be chemically pure, solid, and crystalline, with its melting heat at from 86° to 90° C. It is odorless, tasteless, and does not irritate the mucous membrane. It is decomposed into guaiacol and carbonic acid in the intestine of the healthy person, and in the stomach (containing the products of putrefaction and fermentation) of the consumptive. Guaiacol is then absorbed at once, and is discoverable in the urine in from one-half to one hour. The dose of the salt is from two to five decigrammes (grains iii to viii) twice a day to six grammes (3iss) daily. It is claimed to improve the appetite, to even produce hunger, to aid nutrition and increase

the weight of the patient, to gradually reduce the cough, fever, and night-sweats, rhonchi, and dulness, to facilitate expectoration, and to have diminished the size of cavities. Amongst us, Dr. Kinnicutt has eulogized the carbonate very highly (*Boston Medical Journal*, 1892, No. 21).

The proportion of guaiacol contained in the carbonate is seventy-eight per cent., which it is worth considering when a certain amount is expected to be taken. Otherwise, it appears to be a safe enough preparation, much more so than impure guaiacol, or even the "pure" guaiacol of former times. At the present time, Schüller claims a percentage of ninety-nine per cent. in Riedel's "guaiacol purissimum." On the other hand, the best creasote contains but sixty per cent. of guaiacol, and benzoyl-guaiacol or benzosol (F. Walzer in *Deutsche Med. Wochenschr.*, Nov. 5, 1891), which has been recommended in tablets with cocoa or sugar, or as a powder mixed with *elæosacch. menth. piperit.*, but fifty per cent.

What is the action of guaiacol? In the circulating blood, in expiration, or in the urine, it is not found; in the latter it is found changed into ether-sulphuric acid. As it is readily absorbed, it floats in the shape of an unknown combination which has no direct effect on the bacilli of tuberculosis. Indeed, it takes a long continuance of the administration of guaiacol before the number of bacilli are in the least affected. It is, therefore, rational to conclude that the drug alters the condition of the tissue in such a way as to prevent the bacilli from forming ptomaines. Seifert and Hölscher refer to the unstable and easily decomposed albuminoids of the blood as generating both fever and sweats. Through the sulphur contained in the albumin, these unstable albuminoids are thought to combine with the guaiacol upon its entrance into the circulation, so as to form ether-sulphuric salts. They also suggest, that this is probably the mode of action and combination of all such substances as are eliminated as ether-sulphates; for instance, all phenols, and many "amines," such as phenacetin and acetanilide.

The remedy was almost exclusively given in four doses daily, after meals and at bedtime, in sweetened water or in milk, rarely in a mild wine or in a mixture of whiskey and water. In capsules, I have not given it except in a few cases. In this form it might produce local irritation if taken on an empty stomach. Subcutaneous injections I never made, nor do I intend to do so; for the treatment, if it be expected to be efficient, must be long continued. Nor can I expect that the rectum can be made to stand the local irritation of the remedy for a sufficiently long time. Adults took four drops each time, children from one to three. More than twelve a day a child never received from me, nor an adult more than twenty-eight; larger doses have been given by others. I have not been obliged to entirely discontinue it; two patients did so, and quitted treatment altogether. In one I stopped it, the patient complaining of its bad taste, and his feeling more inconvenience than he thought he was willing to endure. Two cases discontinued temporarily because of a slight diarrhoea, which may have been



due to other causes. Thus, Schüller observed loose bowels in a child who took guaiacol in pills made up with extr. glycyrrhizæ; this may have been the cause of the diarrhœa.

Inhalations have been added to the internal administration in ten cases. The easiest method of arranging for them suggests itself readily in an individual case. Soaking a sponge with guaiacol, exposing guaiacol in a plate, mixing it with water and gently heating it, thus filling the patient's room with the vapor, will be found satisfactory.

I did not commence the guaiacol treatment before September. Since that time more than one hundred cases have been subjected to it, mostly those of adults, and a few children of from four to thirteen years. They were either office or hospital cases. The time has been too short to speak of anything like definite results, if there be such a thing in a process as variable, capricious, and of as long duration as tuberculosis. Statistics must be very extensive to be anything like conclusive, and nothing is more deceptive than the enthusiasm engendered by the combination of an ingenious theory and our anxiety to aid the suffering. Besides, partial or total recoveries from pulmonary tuberculosis have occurred before our time, either in or out of special institutions. I emphasize special institutions because what I have seen of the effects of treatment in general hospitals was not encouraging. Indeed, I have seen a good many consumptives improved, and practically well, before I ever knew guaiacol. For what I said years ago, of the beneficial effect of arsenic and digitalis, I never had a reason to regret or take back. While the results I had already seen follow the patient treatment of tuberculosis kept up my hopes, and while on the other hand the many failures added to anxiety and well-nigh despair, I was glad to welcome guaiacol, shortly after the great tuberculin discomfiture.

A communication like the present, although it is based upon careful observation, can give you but impressions. I am as little given to boasting of cures as you are. But there are in the course of every case of tubercular consumption a number of symptoms which change with the general and local conditions to such an extent that by them we measure the anatomical lesions and calculate prognosis. Such symptoms are the general feeling and bearing of the patient, the state of his digestion, cough, expectoration (whether mucous, purulent, or bloody, the presence and number of bacilli in it), the extent and location of dulness and râles, and the amount of emaciation, if any. The importance of the latter is universally admitted, that of changes in regard to rhonchi and dulness, which has been doubted by Ewald and Guttmann, will be upheld by most of us. For though it be true that not every expectoration need be characteristic, nor every dulness in or about a tubercular lung specific, still, the very engorgements and inflammatory, though in themselves not specific, infiltrations which come and now and then go, prove the constancy of the irritation which gives rise to them.

Let me make a broad statement at once. When the first patients who

took guaiacol—a few in September, more in October and November—turned up again in December or about New Year's, after most of them had been exposed already to the winter crowding, closed windows, and winter weather, I was surprised at the almost uniformly favorable reports volunteered by almost all. There was hardly one but looked better and felt better; even a few absolutely hopeless cases with large cavities asserted they ate better, slept better, and sweated less. Most looked fairly well, and their strength had improved. In almost none had the emaciation increased, most had gained flesh, one ten pounds in two months. I will say right here that in every case where the diagnosis was not absolutely clear without it, the examination for bacilli was made and their presence proven positively. In many, digestion and appetite had improved at once. Cough became looser, and after a month or two appeared to be more mucous and less purulent.

I have not felt justified, in a large number of cases, to limit my therapeutical endeavors to the administration of guaiacol alone. The employment of arsenic (mainly arsenious acid) and digitalis in some form or another has rendered me such eminent service in the treatment of tuberculosis, that in at least half of the cases I have combined them with the use of guaiacol. The best method of giving them is in the shape of pills; almost everybody takes readily two milligrammes of arsenious acid (gr.  $\frac{1}{30}$ ) and two or three milligrammes of (Merck's) digitaline three times a day. This mode of administration has, besides its tastelessness and its long toleration when taken after meals, the further advantage of the facility with which strychnine or another preparation of nux vomica, perhaps, also a mild laxative or a constipating drug, are combined with it. For indeed the disturbances of a universal tubercular process are many and various. They are in most cases anatomically tangible. Even if they were not so, I am not ashamed of owning up to my weakness of trying to make my patients comfortable, though a prescription may consist of more than one or two items. I still believe in my old saying that I prefer a prescription that acts well to one that looks well.

During cold weather cod-liver oil was recommended to all patients with fair digestion. Those with good cutaneous circulation would wash and rub with cold water, or water with alcohol, or warm water with alcohol, over all or part of their bodies. The complications with nasal and naso-pharyngeal catarrh were treated with salt water, sprays of nitrate of silver (1:20–1000), also with irrigations of acetico-tartrate of aluminium in water (1:75–120). Night-sweats have been treated with a single dose, given at bedtime, of a milligramme (gr.  $\frac{1}{60}$ ) or less of atropine sulphate, or agaricine from six to twelve milligrammes. They may be combined, and frequently, when nocturnal cough proved too great a torture, one or both were combined with a dose of morphine.



## *A CASE OF BRAIN TUMOR SITUATED IN THE MOTOR REGION; AUTOPSY.<sup>1</sup>*

BY WHARTON SINKLER, M.D.,

Physician to the Philadelphia Orthopaedic Hospital and Infirmary for Nervous Diseases, and Neurologist to the Philadelphia Hospital.

MICHAEL H., aged sixty, white, native of Ireland, married. The family history is negative. He has always been a hard worker and a heavy drinker. He has a large family of children, who are all healthy. He worked as an iron-moulder until 1877, when he noticed his left leg becoming weak, and he was not able to carry the ladle. He then worked as a gardener for two years. The leg became gradually more paretic, but the arm was not affected in as great a degree, although weaker than usual. In February, 1889, his wife found him on the floor of the kitchen, frothing at the mouth. The face and eyes were drawn to the left side, and the left arm and leg were in convulsive movement. The seizure lasted from fifteen to twenty minutes, and he regained consciousness slowly. Immediately following the attack the whole left side was covered with a profuse perspiration. These seizures recurred about once a week, generally on Friday, at about 7 P.M. They usually began in the left thumb, then the foot was convulsed, and later the whole body. It was noted that the paresis gradually increased, and that a condition of mental aberration developed, the patient requiring constant attention. For the past three years he would often accost people in the street, asking for money for liquor, and he would be brought by the police patrol to the Philadelphia Hospital, his faculties not being sufficient to inform the officers of his name and address.

He was admitted to the Philadelphia Hospital, August 18, 1891, and at that time had unilateral convulsions, which, after his admission, greatly decreased in number. During the last three months of his life he had but one seizure. The paralysis, however, increased, so that there was marked left hemiplegia. There was much contracture of the left foot, so that his locomotion was interfered with, and he had numerous falls. About the middle of April he fell, injuring his left arm and shoulder, which became much swollen and ecchymotic, and, as he often fell, even when sitting on his chair, he was placed in bed to keep him from injuring himself.

On April 29 it was noticed that he was restless, and there was a rise of temperature. The temperature on the morning of the 29th was  $100\frac{2}{5}^{\circ}$ , in the evening it rose to  $105^{\circ}$ . On the morning of the 30th it had

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<sup>1</sup> Read before the American Neurological Association, June 23, 1892.

dropped to  $96^{\circ}$ , but rose again in the evening to  $100\frac{2}{5}^{\circ}$ . Râles were found in the left chest, and a condition of pneumonia was diagnosticated. The patient gradually became worse, and died May 1, 1892.

Several times during the last two days of his sickness the left side was found covered with profuse perspiration; he vomited at frequent intervals, and for sixteen hours before death his face was turned towards the right side, the eyes turned in the same direction. The pupils were dilated but equal. There was total unconsciousness during the last two days, and sensation was retarded, but not abolished.

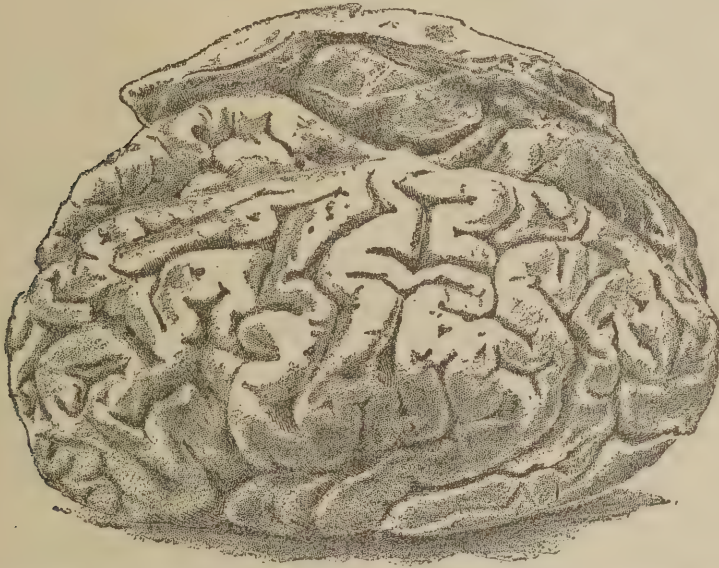
The autopsy was made twelve hours after death by Dr. Henry W. Cattell, assistant Pathologist to the Philadelphia Hospital, who has furnished me with the following notes:

A large, heavy male, with marked ecchymosis and discolored spots around the left shoulder and forearm; also, a swelling of the wrist of same side (injury of a month previous). On the chest there were bruised spots the size of an orange, and contracture of left foot (talipes valgus). No fracture or dislocation of humerus was found; there was crepitation at the joint, evidently due to arthritis.

Lungs: heavy and œdematous; in the lower lobe of the left there was a large amount of dark, fluid blood, which made the lung the color of calves' liver (evidently an apoplexy). The right lung was not so involved. Heart: enlarged; walls flabby; valves red and congested, as was the inner coat of the aorta; various patches of atheroma in the aorta, not calcified; the valves were competent; but little pericardial fluid.

Liver: somewhat cirrhotic; kidneys: capsule free, cortex slightly contracted; spleen: enlarged and flabby.

FIG. 1.



Photograph of brain, showing tumor in situ with a portion of the thickened dura attached.

Brain: large amount of blood in the sinuses; not an excess of cerebro-spinal fluid. Dura very much thickened. The brain itself is of average size, the convolutions and sulci being well marked, although distributed with considerable asymmetry.

The right hemisphere is deeply indented by a tumor, which is visible on the mesial surface, and extends about one-third down the lateral aspect of the hemisphere. In size and shape it resembles the half of a large walnut in its vertical diameter, the



portion attached to the dura being the flattened portion. Its longitudinal diameter is two and a quarter inches; its transverse, one and three-quarters, and the vertical, one and a quarter inches. The anterior edge of the tumor is at a distance of five inches from the anterior edge of the hemisphere, while from its posterior edge to the corresponding edge of the occipital lobe is four inches. The entire distance measured over the tumor, from the lower edge of the parietal to that of the occipital lobe, is eleven and a quarter inches. The dura mater is firmly adherent to the growth. The tumor lies in a depression in the brain, having no connection with it, but, on the contrary, being readily lifted out by lifting up the dura. It occupies the region of the fissure of Rolando, and in order to accommodate itself has separated the two central convolutions until they are two and a half inches apart at the longitudinal fissure. They meet again in the fissure of Rolando lower down, thus forming, approximately, a triangle, which the tumor occupies. The ascending parietal convolution is greatly distorted and pressed away from the longitudinal fissure, terminating in a sharp edge about one inch from the mesial surface. The precentral sulcus,

FIG. 2.

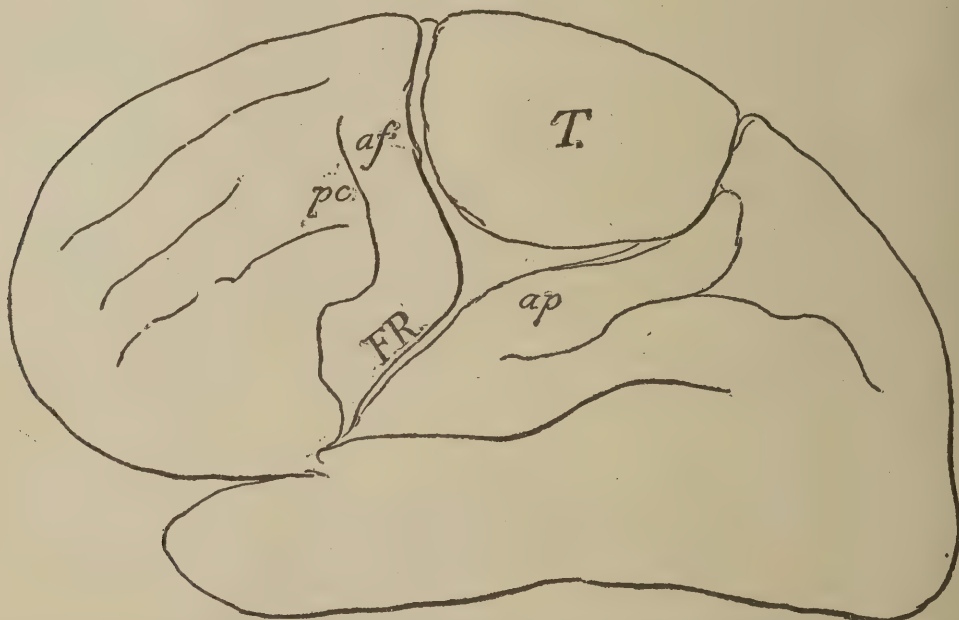


Diagram showing relation of tumor to the fissure of Rolando.—*af*, ascending frontal convolution; *ap*, ascending parietal convolution; *F.R.*, fissure of Rolando; *pc*, precentral fissure; *T*, tumor.

which is distinctly marked on both sides, is much displaced, being bent in a manner corresponding to the ascending frontal convolution. On the mesial aspect the callosomarginal fissure on the tumor side is seen to terminate one inch further posteriorly than on the other side. The height of the mesial surface on the sound side is about two inches, while on the other the brain substance is but one inch thick, the tumor representing the other inch. This diminution in thickness of the brain matter is due to compression of the marginal or first frontal convolution. The gyrus fornicatus is not much altered.

The concavity in which the tumor rests is marked by several fissures, but on the whole is rather smooth, resembling somewhat the acetabulum in the dried pelvis. The growth lies perfectly free in this cup, like an egg in the hollow of the hand. Its only attachment to the brain is indirect, through the medium of the dura mater, which has become slightly adherent to the brain surface posteriorly to the tumor. There are no adhesions anywhere else. The growth is but slightly, if at all, elevated above the level of the brain, and is encapsulated.

The region pressed upon contains the motor centres for a large part of the left side of the body. From the extent of the tumor, occupying from one-third to two-

fifths of the length of the central fissure, it is probable that the following centres were implicated: (*a*) those for the leg and foot; (*b*) those for the arm and hand.

A microscopic examination of the growth shows it to be a sarcoma.

I am indebted to Dr. David Reisman, resident physician at the Philadelphia Hospital, for the drawings and description of the tumor.

## ENTRANCE OF AIR INTO VEINS.

BY EDWARD MARTIN, A.M., M.D.,

Surgeon to the Howard Hospital; Assistant Surgeon to the University Hospital.

THE subject of the entrance of air into veins has been so thoroughly traversed by Bousse (*Mag. f. die Gesammte Heilk.*, 1838, Bd. 52, p. 3), Amussat ("Introduction de l'Air dans les Veines," *Bull. Acad. de Méd.*, Paris, 1836, i. pp. 394, 1837-38, ii. pp. 363, 461), Miroult (Thèse de Paris, 1832), Gueretin (Thèse de Paris, 1837), Senn (*Trans. American Surgical Ass.*, vol. iii., 1885), and others, that further discussion of it would seem unnecessary. There are, however, many surgeons who not merely doubt the observations of clinicians upon this subject, but incline to a belief that such an accident is not only impossible, but even should it occur would be attended by no danger, and that cases of sudden death attributed to the entrance of air into veins have in reality been due to syncope or other well-known causes.

This belief has been upheld on the ground that experimentally a large quantity of air can be forced into the veins of dogs without producing serious symptoms, and that it is almost impossible to induce air to enter the blood-vessels spontaneously.

The proof of air-entrance afforded by the numerous carefully-conducted post-mortem examinations has been controverted by clinical evidence showing that gas is not rarely found in the vessels of those who have perished without a lesion by which air could possibly enter the circulation.

Considering the statement that gas is frequently found in the vessels of those who have perished from disease, there is a long list of authorities in support of this position. Every one who has had extensive experience in performing post-mortems has at times observed bubbles alternating with small clots of blood, which could be pushed to and fro in certain of the vessels by pressure of the finger. Usually this gas is the result of decomposition, although at times it forms with extreme rapidity and in bodies which exhibit no sign of decay. Many observers have held that gas is generated at times before death, and is in reality the direct cause of the fatal issue.

Littré ("Mémoire de l'Acad. de Science," Paris, 1714) observed that



air was frequently found in the blood-vessels of those who perished from hemorrhage, particularly in cases where bleeding was violent, and the veins were suddenly emptied and collapsed.

Lieutard found a large quantity of air in the cerebral vessels of a man who had lost much blood, and Nysten (*Recherches de Physiologie de Chimie*, Paris, 1811) noted that a large amount of air was found in the veins of beheaded criminals.

Pechlin (*Obs. Phys. Méd.*, No. 57, p. 135) performed an autopsy on a man who died with anginose symptoms. The heart and veins contained almost no blood, but were greatly distended with air, especially the right ventricle.

Ruysch (*Op. omnia*, 1737, p. 9) found the heart of a man who had died suddenly, enormously distended and containing almost no blood. The organ collapsed on being incised. He ascribed death to the presence of air.

Morgagni observed in 1708 a perfectly healthy man, aged thirty, suddenly drop dead while blowing a trumpet. The patient fell backward with general trembling of the limbs; twelve hours later section was performed. Nothing abnormal was found, excepting that the blood-vessels of the brain, particularly those of the corpus callosum, were inflated with air mingled with liquid. Morgagni (*Gazette Médicale de Paris*) ascribed death to the pressure of the gas.

Baudelocque frequently found the gas of decomposition in his post-mortem examinations.

Jürgensen (*Schmidt's Jahr.*, 1888, No. 1, p. 155) reported a case of gastric ulcer with perforative peritonitis and death. Much gas was found in the blood, though no cause was assigned.

Davidson (*Lancet*, 1883, p. 999) reports two cases of sudden death after delivery. The right heart contained air and blood; the uterus was empty, with gaping veins.

It is evident that the mere presence of gas in the blood, as found by post-mortem examination, cannot be taken as proof that such gas necessarily entered the circulation before death. If, however, this gas could be proven to have the same composition as air, its presence, if widely diffused, would be absolutely conclusive as to the possibility of air entering the circulation during life.

I have been able to find but a single case in which this observation was made. This is found in the *Gazette Médicale*, 1839, p. 344. Pellis, physician to the Insane Hospital of Lausanne, had under his care a melancholic who cut his throat with a razor. There was a large transverse wound in the suprahyoid region; bleeding was free, and was both arterial and venous. The external jugular vein was divided. While preparations were being made to dress this wound, the patient suddenly threw his head back and made a deep inspiration, a glou-glou was heard, and at the same instant the patient ceased breathing.

Pellis examined only the heart; all the vessels were tied before being divided, so that neither blood nor gas could escape from this organ. When the heart was removed and placed in a vessel of water, it floated. On incising the cavities, both right and left, bubbles of air escaped. Afterward the heart sank. This air was subjected to analysis by Bischof, and was found to possess all the properties of atmospheric air. It was found in greater quantity on the right side of the heart.

This case, in itself, seems conclusively to prove that the gas found in vessels after death is not necessarily of post-mortem formation. Proof upon this point is also offered by the fact that, almost without exception, post-mortem section of cases perishing with the classical symptoms of entrance of air into veins has shown the presence of frothy blood in the right side of the heart. Though it cannot be denied that such a condition may be occasioned in other ways, still this is so exceptional that it is rarely observed by those who have had most extensive experience in autopsies; hence the fact that it is constantly associated with certain definite symptoms sufficiently shows its relations to these symptoms.

In regard to the lack of clinical evidence of entrance of air into veins, there is almost no fact in surgery which has been more fully confirmed by distinguished surgeons. Following the observation of Magendi in 1821 (Beauchene, 1818), Dupuytren, Roux, Warren (*American Journal of the Medical Sciences*, August, 1832), Castara, Mott, Cooper (*Lancet*, 1843, p. 448), and a host of other observers have reported convincing cases.

One of the best-reported cases of sudden death due to the entrance of air into the veins is by Ulrich (*Journal des Connais. Méd-Chir.*, t. ii. p. 91). The patient was a strong man, fifty-four years old, and quite healthy, with the exception of a large tumor on the left side of the neck, dating from early childhood. In dissecting out this tumor, Ulrich opened the internal jugular vein; the wound gaped so that the interior of the vessel could be distinctly seen. A hissing sound was heard and frothy blood came from the cardiac side of the vein. The patient was at once collapsed, and slight convulsive movements of the facial muscles were noted; also, opisthotonus lasting about half a minute. The pulse became small and fluttering, a few inspiratory efforts were made at long intervals, and the patient died. Autopsy was performed fifty-two hours later. The body was kept in a cool room; there was no sign of decomposition. The walls of the jugular vein were adherent to the tumor and widely gaping; the vessel was obliterated just below the jugular foramen. The right heart was filled with air.

A large number of cases are recorded in which recovery took place in spite of the characteristic symptoms of entrance of air into veins.

Rigaud, in operating upon an aneurism in the axillary region, divided the external jugular vein. Aspiration of air was distinctly heard, three times repeated, and bubbles appeared in the openings of the divided vessel. A buzzing sound was also heard in the depth of the wound. No constitutional symptoms resulted from this.



Dalaporte notes a similar case; during operation upon a tumor of the neck, a hissing sound was heard and the patient became collapsed.

Velpeau (*Gazette Médicale*, 1838, p. 116), in removing a tumor of the neck which was deeply attached, divided the jugular vein. A hissing and bubbling sound was heard in the depth of the wound, and the patient became collapsed. The vein was compressed and the operation was completed; under restoratives the patient reacted.

It must be confessed that in these cases the evidence of entrance of air into the veins is not complete. In none was auscultation of the heart practised.

There is, however, abundant testimony to the fact that small quantities of air can enter the vein and yet not produce very serious effects. Thus, in former times it was the practice to treat hydrophobia by injection of water, and Rochoux observed that from imperfect syringes bubbles of air many times entered the veins without producing circulatory disturbance.

Those who practise saline injection must have had similar experiences. Cases are on record where at least a dozen bubbles were seen to enter the vein, and yet no inconvenience was occasioned thereby.

Although clinical records show air has spontaneously entered veins during the course of operation, experimentally it is extremely difficult to cause this phenomenon to occur in animals. Thus, the writer has operated on veins of the neck in dogs and rabbits many times, often in the so-called region of danger,—that is, where the tension of the venous blood is visibly influenced by the respiratory movements. The favorite laboratory method of killing dogs at the completion of an experiment is to expose the external jugular vein while the animal is still under the influence of an anæsthetic, tie in a canula, and inject chloroform, which immediately arrests the heart. The canula is often left in the vein one or two minutes while the experimenter is filling his syringe with chloroform. Air was never seen to enter the circulation. When a large vein is divided at the root of the neck, it either bleeds furiously, or, on profound inspiration, its walls collapse.

Hertwig freed the jugular vein of a horse, ligated it, opened it beneath the ligature, and inserted a short tube. The air entered with a loud, lapping sound, interrupted by each heart-beat. After five minutes the breathing became somewhat irregular and the pulse fuller. These symptoms were so marked in eight minutes that the tube was removed. The animal recovered after eight days.

Hertwig repeated this treatment on a pug dog, eleven years old; the jugular vein was exposed and ligated; it was opened and a tube was inserted in the direction of the heart. Air entered the vein with a loud sound, the animal was seized with a spasm, breathed quickly, evacuated the contents of the bladder, and died. The beating of the heart was violent during the entrance of the air; the pulse could not be felt, and the pupils were dilated.

On section, all the abdominal vessels were immensely congested. The

lungs were empty of blood; the left side of the heart contained black blood; the right auricle and ventricle contained bloody foam.

Hertwig's conclusions, based upon an elaborate experimental study, are as follows:

The entrance of air in the blood-vessels causes paralysis, stupor, and convulsions; these symptoms appear in every case. If a large quantity of air enters, especially if it enters rapidly, death results.

The quantity of air required to produce death differs in different animals, and appears to bear no ratio to the body-weight. Horses and all ruminants bear a large quantity of air. Dogs, on the contrary, even those as large as sheep, are killed by an amount of air not sufficient to seriously affect the latter animal.

The spontaneous entrance of air into the veins does not readily occur. It is favored by obstruction to the flow of blood and a gaping condition of the veins.

In Senn's experience there has been spontaneous entrance of air in the veins in several instances. He placed a small dog under the influence of an anæsthetic and opened the longitudinal sinus by two transverse incisions. The hemorrhage was violent; no air entered while the animal was in a recumbent position. As the breathing became irregular and superficial, the head was placed in an elevated position, and artificial respiration practised. The heart suddenly ceased to pulsate. On auscultation a few irregular, feeble contractions, attended by a churning sound, were heard, and the animal suddenly expired. On examination, the right auricle and ventricle were dilated and filled with air and spumous blood; the left ventricle was almost completely empty.

A horse was held in a standing position, with its head elevated. An opening was made over the longitudinal sinus, and its anterior wall was completely divided; blood escaped freely. On the first inspiration after incision, air entered the venous channel with a loud, gurgling sound. On ausculting over the heart, a churning sound was heard. Air-bubbles escaped from the proximal end of the sinus during expiration. When the head was depressed, bleeding increased, but air did not enter.

In one of my experiments air entered the circulation spontaneously, though not until the vein was held open by means of a glass tube. A medium-sized dog was etherized; the external jugular vein was dissected entirely free at the base of the neck. A clamp was placed upon the vein, an incision was made on the cardiac side of this clamp, and a glass tube, as large as the vein would admit, was thrust toward the heart for a distance of two inches. During half a minute free bleeding took place through the tube, the stream being influenced by expiratory movement. Then the animal inspired deeply, when air entered with a loud, sucking sound. The bleeding continued during expiration, frothy blood being now poured out. The churning sound, so often described, was heard over the cardiac region. This sucking in of air and bleeding continued for ten minutes, when the animal died.



On examination, the right side of the heart was greatly distended with air and spumous blood. The left side of the heart was nearly empty, but also contained bubbles of air; air was seen in the coronary vessels, in the sinuses of the brain, and in the mesenteric veins.

Cases are reported where the air entered respectively the external jugular vein, the internal jugular, the fascial, the axillary, the anterior thoracic, the superficial cervical, the femoral, the internal saphenous, the uterine, the pulmonary veins, and the superior longitudinal sinus. Senn has collected reports of the accidents as occurring from injury to each of these various vessels.

The vast majority of all cases, however, occur in what is called the region of danger,—that is, the region immediately above and below the clavicle, where respiration visibly affects the tension of the huge venous trunks placed in this region. Magendie fully describes the mechanism of spontaneous entrance of air into veins. He states that it is due to aspiration combined with any condition which prevents the walls of the vein from falling together.

Further, Nysten (1811) called attention to the value of auscultation, by which the peculiar sound made by the air as it is churned by the cardiac beat is perceived.

The lapping, sucking sound occasioned by the entrance of air into a large venous channel is described by those who have heard it as so entirely different from the sound at times noticed when operating in or about the chest cavity, as, for instance, in certain cases of deep axillary tumors or in rib resection for the relief of empyema, that it can never be mistaken for aspiration into the connective-tissue spaces, or into a great cavity of the body. In experimental work this sound seemed in no wise different from that commonly heard in chest operations.

Sudden death during operation, or even convulsive attacks, cannot be considered in themselves as even suggestive of the entrance of air into the veins. When, however, these symptoms are associated with tumultuous heart-action and the peculiar distinct churning sound, the true nature of the complication is readily perceived.

Though innumerable theories have been advanced to account for the disturbance of the circulation occasioned by the mingling of air with the blood-current, since the early part of the present century death from this accident has been commonly ascribed to mechanical over-distention of the right side of the heart.

Senn states that death is produced by,—

1. Mechanical over-distention of the right side of the heart and paralysis in diastole.

2. Asphyxia from obstruction to the pulmonary circulation dependent on air embolism of the pulmonary artery.

The abundant proof to the effect that a large quantity of air can be insufflated into the veins of certain animals without producing death is

probably of no value in considering the effect of the entrance of air into the circulation of man. It has been shown that animals differ greatly in the capacity of the right side of the heart to dispose of air. In those possessed of powerful right ventricles the mechanical difficulty is overcome: the air is forced through the pulmonary capillaries, is distributed throughout the vascular system, and is quickly absorbed. Thus, horses and sheep can stand with comparative comfort the insufflation of an amount of air that would kill a dog. And in so far as the evidence of a single experiment is of value, dogs are more tolerant of air in their veins than are monkeys.

Monkey, age unknown. Weight, six pounds. Miliary tuberculosis. Ether administered, internal jugular vein exposed, and a canula introduced. About three and a half cubic inches of air were then injected. The monkey ceased breathing within ten seconds. Some churning sounds were heard about the heart, the motions of which then became imperceptible to auscultation. This injection caused almost instant death. On examination after death, I found the heart arrested in diastole; the coronary veins, the pulmonary veins and arteries, the left ventricle, the carotid arteries, the mesenteric veins, in fact all the vessels of the body contained air emboli.

What the fatal quantity is in man there is no way of determining. It is certain that a few bubbles may be injected without occasioning any symptoms. It is also clear, recalling the huge size of the veins at the base of the neck, that where these remain gaping, a single deep inspiration may suck in a very large amount of air. Further, it cannot be doubted that in proportion to the individual heart-strength will be the ability to survive an admixture of air with the blood.

The complication of a surgical operation by the spontaneous entrance of air into an injured vein has always been one of the rare accidents of surgery. The greater number of reports have been published in the first half of the present century. Reasons for this are found in the fact that, before the advent of anæsthetics, patients were often placed in a sitting or half-reclining position. This, Senn has shown, clearly predisposes to the entrance of air into the veins. Again, the patient being conscious, respiratory muscles were undoubtedly put into more violent action than is the case when they are kept profoundly under the influence of ether. Finally, the surgeon was forced to operate with great speed, and was not supplied with the appliances which make so easy the immediate closure of wounds in vessels.

For the treatment of the entrance of air into the veins, Magendi advised immediate compression of the wounded vessel, followed by the introduction of a tube by way of the vein into the right ventricle for the purpose of drawing off the contained air.

Rapidly-acting cardiac stimulants, given by inhalation or by hypodermic injection, are universally considered of prime importance.

Senn advocates the employment of amyl nitrite, and advises relieving the overstrained right ventricle by free bleeding from the wounded vein



and by prompt puncture and aspiration. The aspirating needle is thrust into the left intercostal space between the fourth and fifth ribs, about an inch and a half from the margin of the sternum; as soon as the needle has pierced the skin it is connected with the aspirating bottle and thrust inward till, on entering the ventricle, frothy blood passes through it into the receiver.

From this brief review of the subject of the entrance of air into veins, the following facts would seem clear:

1. Air can be aspirated into a wounded vein by inspiratory movements, if through attachments or thickening of its walls the vessel cannot collapse. An elevated position of the part favors the entrance of air into a wounded vein.

2. A churning sound, heard on ausculting the heart, and the escape of frothy blood from the proximal end of the wounded vessel are the only diagnostic signs of this accident, though a loud sucking or lapping sound, followed by collapse and local or general spasms, would strongly indicate that this complication had occurred.

3. Experiments upon animals show that the various species differ greatly in their power to resist the effects of air insufflation. Hence conclusions drawn from laboratory study are of little value in determining the influence of air in the veins of man.

4. A few small bubbles of air introduced into the veins of man are innocuous. The quantity capable of destroying life is unknown, but is probably proportionately far less than the quantity sufficient to kill the animals commonly experimented on.

5. Compression of the vein through which air is entering, between the wound and heart, free bleeding from this wound, the administration of cardiac stimulants, and, if the apparatus is obtainable, aspiration of the right ventricle represent the most efficient treatment for the relief of the overburdened right heart. Each minute that life is prolonged makes the prognosis more favorable.

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## *THE GIANT CELL OF TUBERCLE.<sup>1</sup>*

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THE first change which the presence of a tubercle bacillus produces in a tissue<sup>2</sup> is multiplication of its fixed connective-tissue cells, which increase in size, divide by karyokinesis of the nucleus, and thus give origin to the so-called epithelioid cells, which may be looked upon as the essential ele-

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<sup>1</sup> Read before the Philadelphia Pathological Society, October 13, 1892.

<sup>2</sup> Baumgarten, *Pathologische Mykologie*, 1890, Bd. ii.



Fig. 1 Giant Cells

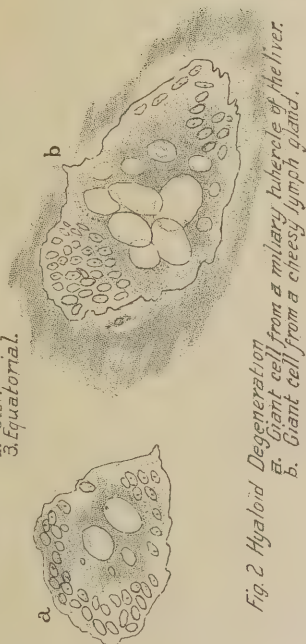


Fig. 2 Hyaloid Degeneration

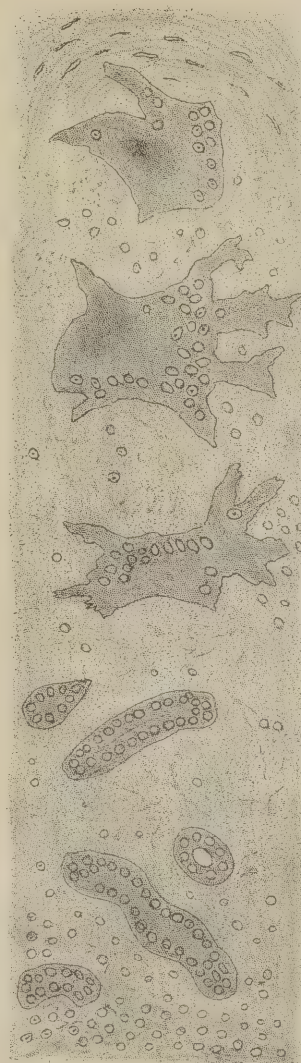


Fig. 3. Evolution of a giant cell from a bile duct. From Arnold.



Fig. 4. Angioblast or origin of the giant cell described by Bränewski.

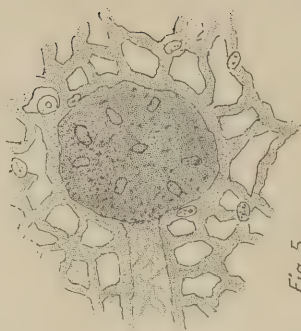


Fig. 5. Origin of giant cell as described by Schüppel.





ments of the tubercle, always being present at some stage of its development. The epithelioid cells are large, have an irregularly spindle shape, possess a considerable amount of protoplasm, and contain one, two, and occasionally several oval vesicular nuclei. The nuclei are finely reticulated, contain numerous fine granules, and usually a nucleolus.

At the same time that the epithelioid cells are accumulating, a second cellular factor usually appears in the form of a rather wide-spread (depending upon the character of the tissue) infiltration of *small round cells*, which are very probably leucocytes, and may be few in number or very numerous. They usually form a zone surrounding the epithelioid cells, but are not circumscribed by any distinct line, and sometimes distribute themselves so evenly through the tubercle, among the epithelioid cells, and so preponderate over them in number as to make the tubercle appear to consist solely of them. When caseation begins, the small round cells are the first to metamorphose, and, as they change into a granular detritus, the epithelioid cells again come into prominence for a time. Little by little these also show signs of degeneration; the nucleus stains but faintly, then not at all, and finally the entire cell loses its configuration, becomes yellow, granular, and disappears in the cheesy mass. In its formation and growth by cellular proliferation, as described, the tubercle occupies considerable space at the expense of the normal cellular elements of the tissue, which atrophy and disappear, leaving the more resistant fibrous stroma to form the framework of the tubercle. Sometimes when caseation is advanced this fibrous stroma remains prominent and gives the tubercle a reticulated appearance. Tubercles are constantly avascular, occlusion of neighboring capillaries and small vessels occurring by proliferation of their endothelium and by thrombosis.

The tubercle bacilli have a very constant relation to the tubercle, and usually are most numerous in the healthy, actively-growing periphery, while few or absent in the degenerating centre. They are not only found occupying the lymph-spaces between the cells, but also are found *in* certain of the cells. The small round cells are usually without enclosed bacilli, while the epithelioid cells contain large numbers, hence, the tubercle bacillus being possessed of no individual movement, the latter cells are supposed to have amoeboid movement and are classed with the "phagocytes." Bacilli which occupy the degenerated centre are rarely numerous, and usually exhibit the peculiar beaded appearance which is supposed to indicate their involution.

In the majority of tubercles a third cellular element presents itself, viz., the GIANT CELL, which for so long a time was considered characteristic of tubercle. The giant cells are large, irregular, protoplasmic bodies measuring from  $14.6\ \mu$  to  $138.8\ \mu$ , and containing from half a dozen to several hundred oval, slightly flattened, vesicular nuclei of equal size. In the smaller cells the nuclei show no tendency to a definite arrangement, but in the larger cells they are usually characterized by a circumferential, polar, or equatorial distribution.



The giant cells often appear to lie in distinct open spaces, which are probably dilated lymph-spaces, and sometimes are surrounded by an envelope of fibrous tissues,—the mantle of Langhans. As the cheesy degeneration of the tubercle progresses, the giant cells, which usually lie at its periphery, also show signs of beginning degeneration. The protoplasm of the anuclear areas becomes slightly yellowish, finely granular, and somewhat opaque. The nuclei appear to shrink and to assume a club shape; finally they refuse the stain, become indistinct, and are lost in the granular *débris*.

They also seem to suffer a second form of metamorphosis, which may be described as *hyaloid*, and which is more common in giant-cell sarcoma than in tubercle.

In this form of degeneration colorless droplets, resembling vacuoles, appear in the protoplasm, increase in size and number until the entire cell is destroyed, and only a collection of drops remains in the space once occupied by the cell.

The protoplasm of giant cells frequently contains foreign particles,—red blood-corpuscles, pigment granules, tubercle bacilli, dust, etc.,—and hence are phagocytic and to some extent amœboid. They almost always contain tubercle bacilli, and Weigert,<sup>1</sup> who gave this fact special attention, found that one hundred giant cells contained one hundred and fifty-three bacilli. In seventy he found a single bacillus to the cell; in eighty-eight the bacilli occupied the nuclear zone; in six bacilli were found in the anuclear centre. Several cells were found to contain so many bacilli that it was impossible to count them.

From this and other studies of the subject, we find the distribution of bacilli in the giant cell to be approximately the same as in the tubercle itself,—i.e., they lie in the properly-nourished periphery rather than in the degenerated centre. Occasionally they are found in the cheesy centres of the giant cells, but in these cases degeneration is apt to affect the bacilli themselves.

The evolution of our knowledge of the giant cell is an interesting study, and, in following the literature of the subject, one can but remark upon the different theories which have been advanced to explain its origin, and the efforts which have been made to attribute to it a definite function.

Rokitansky,<sup>2</sup> in 1855, makes the first mention of the giant cell in tuberculosis which I have been able to find. Believing in endogenous cell formation, he thought these cells to be “Brutzellen” or “Mutterzellen,” and, mistaking the nuclei for young cells, believed that the small cells of the tubercle originated in the giant cells.

Virchow<sup>3</sup> spoke of finding round, yellowish, opaque accumulations of finely granular appearance, not rarely surrounded by a thick and dense connective-tissue layer, suggesting that transverse “sections of lymph-vessels

<sup>1</sup> Deutsche medicinische Wochenschrift, 1885, August 27, p. 599.

<sup>2</sup> Lehrbuch der pathologische Anatomie, Wien, 1855, Bd. i. S. 294, 295.

<sup>3</sup> Die krankhaften Geschwülste, Bd. ii. S. 640, 641, 1863.

with thickened contents had been made." The peripheral arrangement of the nuclei suggested to him that the explanation of the occurrence of these unusual bodies might be found in proliferation of the epithelium lining lymph-channels, but he was unable to satisfy himself of this.

Again,<sup>1</sup> he suggests their origin from connective-tissue corpuscles, but admits the possibility of their formation by other cells, as endothelium, epithelium, nerves, muscles, etc.

Langhans<sup>2</sup> called attention to the frequent circumferential arrangement of the nuclei. He did not agree with Virchow that they represented altered lymph-vessels, because he found them scattered irregularly through peritoneal tubercles, which he studied, and never arranged in a continuous series, as should be the case if they actually were lymph-vessels. In tubercular disease of the choroid, he found that the giant cells contained pigment, and hence concluded their existence to be dependent upon the fusion of neighboring stellate pigmented cells, or the overgrowth of individual epithelioid cells.

Klebs<sup>3</sup> continued to incline towards the view of their lymph-vascular origin, and suggested the probability of their formation by the coagulation of albuminous bodies in the vessels, especially when small round cells were incorporated with them.

Köster<sup>4</sup> thought they arose from the endothelium of vessels.

Schüppel<sup>5</sup> designated them as *protoblasts*, or cellulo-genetic bodies, formed by the coagulation of fibrinous masses in the blood-vessels.

His idea seems to be that these fibrinous masses become cells by the spontaneous generation of nuclei. From the protoblasts new cells were given off into the surrounding tissue. As the cells had very irregular outlines, he thought them amœboid.

Brodowski<sup>6</sup> said, "With a word my observations lead me to the conviction that the formation of the so-called giant cells is brought about by the abnormal activity of the blood-vessels. This abnormal activity characterizes itself, on the one hand, by hypertrophy of certain parts of the protoplasmic germs of these vessels, and through the formation of an unusually large number of nuclei in the hypertrophied parts of the protoplasmic germ; . . . on the other hand, this deviation is characterized by cessation of the development of the misformed germ."

". . . In spite of this still-stand, one can observe in the middle of the

<sup>1</sup> Virchow's Archives, Bd. xiv.

<sup>2</sup> Ueber Riesenzellen mit wandständigen Kernen, Virchow's Archives, Bd. xlii., 1868.

<sup>3</sup> Beiträge zur Geschichte der Tuberculose, Virchow's Archives, Bd. xlv.

<sup>4</sup> Ueber fungöse Gelenkentzündung, Virchow's Archives, Bd. xlviii.

<sup>5</sup> Ueber die Entstehung von Riesenzellen im Tuberkel, Archiv der Heilkunde, Bd. xiii., 1872.

<sup>6</sup> Ueber die Ursprung sog. Riesenzellen und über Tuberkel im allgemein, Virchow's Archives, Bd. lxiii., 1875.



capillary vessels protoplasmic bridges connecting with the giant cells, and also in the cells themselves—one might say fragmentarily—this or that appearance which suggests the manifestation of the development of blood-vessels.” He called this appearance “granuloma giganto-angioblastium.”

Tizzoni<sup>1</sup> thought giant cells to be altered lymph-vessels.

Jacobson<sup>2</sup> studied the granulations of normally-healing wounds, and emphasizes the fact, pointed out by Billroth as early as 1856, that giant cells form a pretty constant entity in granulations.

Weiss,<sup>3</sup> like Jacobson, diverted from the tubercle itself and studied giant cells in their general relation to disease. Experimentally introducing into the cellular tissue fibres of cotton, etc., his results and conclusions are as follows :

1. The giant cells (which he always found surrounding the foreign bodies) are formed by the confluence of the protoplasm of neighboring cells.
2. The cells which thus originate the giant cells are granulation-cells.
3. The giant cells do not change either into connective tissue or blood-vessels, but always undergo fatty metamorphosis, even when the conditions of life are best.

He thought it impossible that the giant cells originated from mononuclear cells by multiplication of the nuclei, because he found the foreign bodies *in* the giant cells. This proved to him that the cells were formed around them, and, as in many places he found groups of leucocytes surrounding the foreign body, his inference was that the giant cells were formed by the fusion of these.

Lübimow<sup>4</sup> thought that giant cells were formed by the addition of protoplasm to, and the multiplication of, the nuclei in epithelioid cells, and thought that they occupied the lymph-spaces.

Weigert<sup>5</sup> also believed that giant cells originated from the epithelioid cells by multiplication of the nuclei, and gave us the first satisfactory explanation of their eccentric nuclei by calling attention to the fact that the cheesy change which occurs in the protoplasm of the cell is a variety of coagulation necrosis, a local death of the cell, and that the nuclei, which possess the power of moving within the cell, seek the still normally nourished, healthy protoplasm of the periphery.

<sup>1</sup> Ein Beitrag zur Lehre von den Hodentuberculose, Virchow's Archives, Bd. lxiii., 1875.

<sup>2</sup> Ueber das Vorkommen von Riesenzellen in gut granulirenden Wunden, Virchow's Archives, Bd. lxy., 1875.

<sup>3</sup> Ueber die Bildung und die Bedeutung der Riesenzellen, und über epithelartige Zellen welche um Fremdkörper herum in Organism sich bilden, Virchow's Archives, Bd. lxxviii., 1876.

<sup>4</sup> Zur Frage über die Histogenese der Riesenzellen in der Tuberculose, Virchow's Archives, Bd. lxxv., 1879.

<sup>5</sup> Ueber pathologische Gerinnungsvorgänge, Virchow's Archives, Bd. lxxxii., 1880.

Arnold<sup>1</sup> thought that in miliary tuberculosis of the liver and kidney giant cells were formed by the confluence of neighboring epithelial cells lining detached portions of bile-ducts and uriniferous tubules.

In lymph-glands he viewed the giant cells as originating either from the confluence of the endothelial cells of the vessels or from the confluence of neighboring epithelioid cells. Red blood-corpuscles occasionally met were held by him to have been closed in at the moment of fusion. He also thought it possible for giant cells to increase in number by division.

Hamilton,<sup>2</sup> in studying the use of demineralized sponges introduced into wounds for the purpose of supplying a framework upon which new vessels, etc., might be formed, found many giant cells in the meshes of the sponge. At first he thought these were spongio-clasts, or cells like osteoclasts, produced by the organism for the purpose of removing the foreign structure, but later was obliged to conclude that they were produced purely by the irritative presence of the foreign body.

Waldstein<sup>3</sup> regards the giant cell as the product of the confluence of neighboring cells which seem to undergo a peculiar liquefaction. He offered no explanation of this phenomenon or for the peripherally-arranged nuclei which he mentions.

Marchand<sup>4</sup> found that giant cells could be produced by the subcutaneous introduction of minute particles of silk, etc., and that the foreign particle was usually enclosed in the giant cell. If the cell was small, the body was apt to occupy one pole, but if large, the body was more likely to be in the centre. He concluded that the giant cells were produced by the growth of the epithelioid cells, which in turn arose from the endothelium of the vessels and lymph-vessels. When iodoform was introduced with the bits of foreign material, no giant cells were observed, hence he concludes that iodoform has a peculiar inhibitory influence upon their growth. His investigations showed that round cells gathered around foreign matter almost immediately. In twenty-four hours epithelioid cells were found, in ten days small giant cells could be noted, while about fifteen days were required before large giant cells with circumferential nuclei were numerous. These experiments were all done with aseptic precautions.

Weigert,<sup>5</sup> in 1885, repeats his former belief that the giant cell represents a partial caseation of a growing cell. The central necrotic portion being unfitted for the sustenance of either nuclei or bacilli, they had to move

<sup>1</sup> Beiträge zur Anatomie des Miliartuberkels, Virchow's Archives, Bd. lxxxii., lxxxiii., and lxxxv.

<sup>2</sup> On Sponge-Grafting, Edinburgh Medical Journal, vol. xxvii., Part I., 1881.

<sup>3</sup> Zur Kenntniss der Tuberculösen Erkrankungen des Hodens, Virchow's Archives, Bd. lxxxv., 1881.

<sup>4</sup> Ueber die Bildungsweise der Riesenzellen um Fremdkörper, etc., Virchow's Archives, Bd. xciii., 1883.

<sup>5</sup> Zur Theorie der tuberculösen Riesenzellen, Deutsche medicinische Wochenschrift, 1885, p. 599.



towards the more healthy peripheral part of the cell where the nutrition is good. He thought it possible that the irritation caused by the presence of the tubercle bacillus was sufficient to cause the epithelioid cells (which generally contained bacilli) to increase in size, to multiply their nuclei and thus generate large cells, which did not divide into smaller cells because retarded by beginning degeneration at some point. He considered the possibility of giant cells being formed by the fusion of neighboring cells, and also mentioned Arnold's view of their epithelial origin as possible, but highly improbable, and only occurring where simultaneous coagulation necrosis occurred in neighboring cells. As often as an eccentric arrangement of the nuclei of giant cells occurs, whether in the cells in tubercle, granulations, foreign-body inoculations, etc., he considers it dependent upon the partial death of the protoplasm of the cell.

Nargeli<sup>1</sup> introduced the clotted blood of a pigeon beneath the skin of other pigeons, and found the production of giant cells around the foreign body to be dependent upon the presence of micro-organisms. In seventeen experiments, which he conducted without precautions regarding antisepsis or even cleanliness, he found giant cells present in all but five, and was able to demonstrate the presence of micro-organisms. In twenty carefully aseptic experiments no micro-organisms and no giant cells were found. When present, the giant cells were always external to the clot,—i.e., between the clot and the skin. He thought it improbable that all of Marchand's carefully-conducted experiments were septic, yet differs from him altogether in his results.

Metschnikoff<sup>2</sup> introduced a new era when he began to apply a protective purpose to the phenomena of phagocytosis. His studies upon the amœba, daphnia, frog, and then upon the cells of the human body, led him to conclude that certain of the bodily cells were capable of digesting micro-organisms and thus rendering them incapable of further mischief in the body. He attributed this same function to the giant cells of tubercle which he sees ingest and digest the tubercle bacilli. He even thought it probable that the giant cell *secreted an acid which operated destructively upon the bacilli*.

Holmfeld,<sup>3</sup> Buchner,<sup>4</sup> Fudor,<sup>5</sup> and Nuttall,<sup>6</sup> to whose researches, how-

<sup>1</sup> Ueber den Einfluss der Pilze auf die Bildung von Riesenzellen mit Wandständigen Kernen, Archiv für experimentelle Pathologie und Pharmakologie, 1885, Bd. xix.

<sup>2</sup> Ueber die Beziehung der Phagocyten zu den Milzbrandbacillen, Virchow's Archives, Bd. xcvi.

<sup>3</sup> Ueber Immunität und Phagocytose, Fortschritt der Medicin, 1887, No. 13.

<sup>4</sup> Ueber die Bakterientödende Wirkung des frien Blutserums, Centralb. f. Bakt., v. and vi., 1889.

<sup>5</sup> Ueber die Fähigkeit des Blutes, Bakterien zu vernichten, Deutsche med. Wochenschr., 1887.

<sup>6</sup> Experimente über die bakterienfeindlichen Einflüsse des Thierischenkörpers, Zeitschrift f. Hyg., iv.

ever, but little reference can be made, must be quoted as introducing a new line of thought to combat Metschnikoff. According to these and other observers, the blood, plasma, and serum possess the power of destroying bacteria, and phagocytes, in their eyes, become but the "charnel-houses" in which the dead repose.

Metschnikoff<sup>1</sup> investigated the giant cells of tubercle with special reference to their phagocytic tendency, and using an animal known to be scarcely at all susceptible to tuberculosis,—a variety of the marmot known as the ziesel,—injected into the abdominal cavity a virulent culture of tubercle bacilli.

The animal did not waste and die as susceptible animals do, but, on the contrary, fattened and lived on in a fair way towards recovery. When killed, special attention was given to the liver and spleen, where no tubercles were found, but where a profuse development of epithelioid cells, with all the intermediate steps between them and the large number of giant cells present, was easily observed. The bacilli were found enclosed in the protoplasm of the epithelioid and giant cells. None were observed in the epithelial cells or in leucocytes. He found, by staining the bacilli with fuchsin, that some stained very well, giving sharp, clear outlines, others stained poorly, and still others possessed a remarkable kind of surrounding capsule somewhat resembling the capsule of the pneumococcus, but of a yellowish color. Although he had studied a large variety of forms of the bacillus which were observed in old and degenerating cultures, yet he had never met this picture, to which he gave the name "yellow degeneration." Study led him to conclude that this was the bacillus as it appeared when caught in process of digestion by the giant cell, and he soon regarded the homogeneous yellow capsule as the swollen cell-wall of the bacillus acted upon by the substances secreted by the cell. Soon he concluded that the yellow granules which occupied some of the cells were not the expression of degeneration, but were instead the dead bodies of destroyed bacilli or droplets of the poison elaborated by the cell for their destruction.

The giant cells were irregular in shape, and occasionally presented processes ramifying among neighboring cells, which he noted and thought sufficient proof of their *actively* amœboid nature. He also observed some which were constricted at the centre, presenting an hour-glass shape, and concluded that the giant cells multiplied by division.

His theory of tubercle would therefore be that the bacilli cause multiplication of the connective-tissue cells of the part, producing epithelioid cells, which at once proceed to swallow the bacilli and destroy them. Some of the cells, by growth of the protoplasm and karyokinesis of the nucleus, become giant cells and the arch-enemies of the bacilli. He is particular to tell us that the production of these giant cells is in no way irritative and

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<sup>1</sup> Ueber die Phagocytäre Rolle der Tuberkelriesenzellen, Virchow's Archives, Bd. cxiii., 1888.



dependent upon the presence of contained bacilli, for he has found giant cells which contained no bacilli. No, it is a purposeful activity of the cells having for its object the destruction of the bacilli. Seeing that in man, the guinea-pig, and other susceptible animals the giant cells seem prone to die and degenerate, he explains that the giant cells in these animals are too weak to combat the bacilli and are themselves overcome.

Weigert,<sup>1</sup> in answering Metschnikoff's theory, explains that lack of color is no proof of the degenerated condition of the bacilli, and points out that Baumgarten, who could not find any yellow degenerated bacilli, may have used a better method of staining than Metschnikoff, when all the bacilli would be stained an intense red, or he may have used an inferior method of staining, when degenerated bacilli might not have been stained at all. Again, he says staining bears no relation to virulence, for, although most of our specimens are immersed in absolute alcohol and so are surely dead, yet they stain exceedingly well. However, as anthrax bacilli stain best when most virulent, he is willing to admit that the same may be true of tubercle bacilli.

The hyaline cylinders by which the yellow degenerated bacilli are surrounded would, he thinks, more likely be degenerated portions of the cell deleteriously affected by the bacillary products than *vice versa*. Hyaline change is common in the cells of tubercle. Metschnikoff's assertion that giant cells are amœboid, because they have processes, he thinks ungrounded, although he says they likely are, as they are phagocytic. An hour-glass shape is no more a sign of division than a club shape or a triangular shape would be.

Instead of regarding the yellow granules of the cells as cellular secretions, he returns to his former view of coagulation necrosis, and regards it as the expression of local death of the cell.

Stschastny,<sup>2</sup> working independently of Metschnikoff, and sending the results of his own work to press before his article appeared, concludes from his experiments that the giant cells of tubercle are capable of exerting a destructive influence upon the bacilli. He objects to the view of Weigert and Baumgarten that the granular centre of the giant cell is necrotic, and states that in the ziesel he never found it so. In many cells he found fragments of red blood-corpuscles and dark brown pigment. He could trace completely the development of the giant cell from the epithelioid cell. In sparrows, which show the most acute form of tuberculosis, he never found giant cells, although the bacilli were distributed about in the tissues, and the epithelioid and granulation cells were full of them. His conclusions are:

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<sup>1</sup> Ueber Metschnikoff's Theorie der Tuberkelriesenzellen, Fortschritt der Medicin, No. 21, 1888.

<sup>2</sup> Ueber die Beziehung der Tuberkelbacillen zu den Zellen, Virchow's Archives, Bd. cxv., 1889.

1. The "wanderzellen" of the blood are phagocytes and eat up active bacilli.

2. Tubercle bacilli thus taken up may be carried to distant parts of the body and there set up tuberculosis.

3. Some of the leucocytes, by nuclear division or fragmentation, may change to giant cells.

4. Fixed connective-tissue cells which take up bacilli may become giant cells, but he did not see it in the ziesel.

5. Whether cells free of bacilli can change to giant cells is an open question.

6. The giant cells of susceptible animals suffer degeneration, those of immune animals do not.

7. The giant cells hasten the natural involution of the bacilli and produce dead and degenerated forms, which do not occur in cultures.

8. The primary epithelioid tubercle cannot be differentiated from the primary lymphoid tubercle. Both may arise from bacilli-containing leucocytes.

9. The theory of Metschnikoff and Roser is to be considered true and free from doubts.

Baumgarten's<sup>1</sup> beautiful studies of tubercle of the iris have done much to perfect our knowledge of the subject. He finds the primitive tubercle to consist exclusively of newly-formed epithelioid cells, produced by karyokinesis of the fixed connective-tissue cells. It may be asserted with positiveness that giant cells do not arise by fusion of neighboring cells, but do arise from epithelioid cells by nuclear division. He has seen mitotic figures in the nuclei of a giant cell. He deems Weigert's view of partial cell death a satisfactory explanation of the peripheral arrangement of the nuclei.

Prudden<sup>2</sup> has recently made some experiments of unusual interest by introducing *dead* tubercle bacilli into the living body. He finds at the point of lodgement a tubercle-like nodule develops, whose histology is almost exactly that of the disease when naturally acquired, except that no degeneration occurs. The dead bacilli are always found in the tubercle, and stain well. At first it would seem that the bacilli must be living, but it is impossible, as the cultures were boiled for long periods, and when the sterilized cultures were introduced into control rabbits and guinea-pigs, they did not develop tuberculosis. In these cases the giant cells and bacilli seem to bear no distinct relation to each other. Giant cells were always produced as in ordinary tubercles, but did not degenerate. The whole tubercle showed

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<sup>1</sup> Loc. cit.

<sup>2</sup> Studies on the action of dead bacilli in the living body, New York Medical Journal, June 6 and 20, 1891.

A study of experimental pneumonitis in the rabbit. New York Medical Journal, December 5, 1891.



a tendency to heal, and as time passed the number of bacilli grew less and less.

After such a *résumé* of our knowledge of the subject it need scarcely be said that the giant cells are the result of an excessive growth of the epithelioid cells. Probably the same factors are concerned in their production as operate in producing the epithelioid cells, and, although Metschnikoff does not believe that the irritation of the cell by the tubercle bacillus is operative in the development of giant cells, the fact that a foreign body, be it a live or dead bacillus, a thread of cotton, a fibre of silk, a piece of glass or dust introduced into the tissue, is potent in their genesis, would make it seem reasonable to suppose that irritation is the cause of this overgrowth.

The theory of Weigert, that the nuclei of the cell being movable within the cell seek that part of it best fitted for their nourishment, would account for the peculiar arrangement of the nuclei so often met. If the centre of the cell degenerated, the nuclei would be circumferential. If the cell were long drawn out in the longitudinal axis, and considerable of the centre died, the nuclei would seek the poles. If the poles metamorphosed, the nuclei would seek the median zone. The conditions of life which apply to the nuclei also apply to the bacilli, which are most numerous where the nutrition is best, and so are found at the periphery of the tubercle and at the periphery of the giant cell.

More difficult than the solution of the problem of the origin of the giant cell is that of its possible function. Does the giant cell of tubercle have a special function to perform?

We have seen that the giant cells often have enclosed in their protoplasm a variety of foreign bodies, such as bacilli, dust, pigment, red blood-corpuscles, etc. Metschnikoff, observing this, has suggested that they are produced for the purpose of devouring these articles and digesting as many of them as possible. There can be no question that the giant cell devours. Does it devour to destroy? We have seen how much of the success of his theory depends upon the bacilli noticed to suffer from the yellow degeneration described by Metschnikoff, and have also seen how questionable a test which depends upon staining must be. If his peculiarly colored bacilli are the result of improper staining, there probably is no such thing as yellow degeneration, and we remember that Baumgarten could not find it. If there is no yellow degeneration, there is no evidence that the giant cell operates upon the bacilli in any way differing from its action towards other particles. When we place these facts side by side with the discoveries of Buchner, Fodor, Nuttall, and others who have proved how destructively the blood itself acts upon micro-organisms, we find that the consumed bacilli may be treated in no way differently from silk and cotton filaments or other dead particles which have been devoured by the cells. We find, too, from the researches of Prudden, that in the tubercles of dead bacilli origin giant cells are present.

Putting these things together, we find that it is not only questionable but highly improbable that the giant cell is a specially detailed policeman, whose duty it is to arrest, incarcerate, and execute the destroyers of health and cellular order.

The view which we must take of the giant cell of tubercle, like that of giant cells in general, is that it is a *cellular monstrosity, produced by an abnormal, irritative, reproductive effort of the epithelioid cell*: that it is a monster in size and shape, but still partakes of the amœboid and phagocytic nature of the parent mesoblastic cell, and that, like such cell, it is capable of taking up foreign particles which are irritating the tissues by their presence in it.

We notice that the fate of the cell is destruction by caseation or by hyaloid degeneration, probably hastened by the metabolic products of incorporated bacilli when present. In immune animals like the ziesel, the cells do not degenerate, because the antitoxic and antibiotic influence of the blood and body juices are such that the bacilli are all destroyed before gaining entrance into the cells. If these bacilli are dead, the very existence of the giant cells is simply due to their presence as foreign particles in the tissue.

*Conclusions.*—1. Giant cells are cellular monstrosities, accidental and not purposeful, resulting from the overgrowth of epithelioid cells.

2. This overgrowth is brought about by mechanical or chemical irritation caused by the presence of a foreign body, whether a living or dead micro-organism or some inert particle.

3. Being the offspring of a cell possessed of amœboid and phagocytic properties, the giant cell possesses them to some degree, as shown by the ingestion of foreign particles.

4. Whether living, active tubercle bacilli are thus devoured must remain *sub judice*.

5. The giant cell exerts no special deleterious influence upon the tubercle bacillus, but seems instead to be injured by it, a more observable degeneration occurring in those cells which contain many bacilli than in those which contain none.

6. The giant cell of tubercle does not differ essentially from giant cells elsewhere, except that it shows a more marked tendency to undergo cheesy degeneration, a fact probably due to the peculiar poisonous products of the bacilli in the tubercle.



*THE EFFECT OF CHANGE OF POSTURE UPON HEART MURMURS*<sup>1</sup>

BY VINCENT Y. BOWDITCH, M.D.,

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IN presenting to you a number of cases in which I have noticed in the last three years some rather peculiar phenomena in cardiac murmurs, I cannot, perhaps, give you anything especially original either in the way of observation or explanation of the facts, yet, as I have been unable to find special references to them in medical books, I have thought it worth while to see if others here had had experiences similar to mine, and to learn what, if any, deductions had been made from your observations.

I refer to the change which comes under certain conditions in the character and intensity of the abnormal sounds in a certain number of cases, by no means all, of cardiac disease, whether functional or organic in origin. By this I do not refer to the fact known to every beginner in the practice of medicine that exertion will often bring out a murmur which disappears again during rest, but that a change of the patient from a sitting to a lying position, or the reverse, will quite frequently cause a marked difference in the character of the adventitious sounds conveyed to the ear, a fact often noticed after repeated experiments at one examination of the patient.

I have been struck chiefly by the following facts, viz.,—that systolic murmurs heard at the base of the heart are, in most cases, where any difference is noticed at all by change of position, intensified when the patient is lying down, although the reverse is true also at times.

Again, although I am inclined to believe that the former condition occurs chiefly in cases where the murmur is inorganic (anæmic cases), yet I have undoubtedly noticed it in others where all the symptoms of organic disease are present.

Less frequently, a difference in character of basic diastolic murmurs has been noticed by change of position, some cases showing greater intensity when the patient lies down; about an equal number showing the reverse. The same may be said of murmurs at the apex of the heart.

Of more special moment is the fact that in a few cases a change of position will cause the disappearance or reappearance of a murmur. The most striking case of this was in a woman whom I examined very carefully in the out-patient department of the City Hospital at different times. There

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<sup>1</sup> Read at the Annual Meeting of the American Climatological Association, at Richfield Springs, New York, June 24, 1892.

was a history of three attacks of inflammatory rheumatism with subsequent symptoms of cardiac disease (præcordial pain, palpitation, etc.).

Upon examination, whenever the patient lay down, a basic systolic murmur was heard, which completely disappeared when she rose to a sitting position. On the contrary, however, a præstolic murmur at the apex, distinctly and loudly heard when the patient was sitting up, became very faint and at times completely disappeared upon her resuming a horizontal position, these facts appearing each time the experiment was made, and corroborated by three assistants who, without being biassed by any remark from me, noticed the same phenomena. I saw this patient three times at short intervals, the same facts being noticed each time, although at the last examination after treatment the difference in the change of the apex-murmur was not as marked as on the earlier occasions.

From forty-two cases which I have examined with special reference to the point in question, I find the following results :

Twenty-one showed an increased intensity of murmur when the patient was lying down.

Of these, 9 were murmurs at the base.

“ “ 8 “ “ “ apex.

“ “ 2 “ “ both in base and apex.

“ “ 2 could not be located absolutely.

Five showed increased intensity of murmur when the patient was sitting up.

Of these, 2 were murmurs at the apex.

“ “ 3 could not be located, but were more or less diffused.

Sixteen showed no special difference in the murmurs upon change of position.

Of these, 6 were murmurs at the base.

“ “ 9 “ “ “ apex.

“ “ 1 could not be located.

Since beginning my paper I have been much interested in reading in the *New York Medical Record* of June 11 a brief résumé of a paper bearing on this subject by Dr. O. B. Campbell, of Ovid, Michigan, read before the American Medical Association, in which he reaches much the same conclusions that I have. I have been given to understand also that Dr. Loomis made some remarks on the same subject at the last Congress of American Physicians and Surgeons ; but I have been unable to find a report of his remarks, and trust we may have the benefit of his experience in the discussion to-day.

Out of one hundred cases examined by Dr. Campbell the murmur became more distinct in the recumbent position in seventy-eight, more distinct in the upright position in six, unaffected by change of position in twelve, not heard standing but developed by lying down in four.



It would seem, therefore, that there is no definite law by which we can determine which position affects these changes most. The fact remains, however, that the murmurs are frequently affected in character by change of position, and this once noticed may lead to something more definite in the future.

It is easy to theorize as to the cause of these changes, and in the case which I have quoted as especially striking, the theory which had seemed a plausible one to me would seem to have been corroborated, viz., that when the patient is in a supine position, the heart by gravity tends to fall backwards towards the spine, thus causing the great vessels as they emerge from the heart to bend upon themselves, thus making an increased obstruction to the flow of blood and an intensified systolic murmur at the base. On the other hand, the præsystolic mitral murmur is less distinct to the ear by the falling away of the heart from the chest-wall when the patient is lying down, and intensified as the heart comes forward again upon the patient's rising.

Unfortunately for the truth of this theory, however, cases occur in which the exact opposite of the above conditions are found, and we are, therefore, obliged to look for some other explanation of the facts noticed. The theory that the difference in the sounds may be attributed, after all, to exertion on the part of the patient can, I think, be safely put aside, for in nearly every case I have made the patient change the position at least five or six times in each single examination.

In either position an equal amount of exertion is used, whether the patient lifts himself up to a sitting posture (the legs being extended in the bed), or lets himself slowly back into a reclining position; hence my reasons for attributing these changes of sound to some other cause than exertion alone.

Of course, it cannot be claimed that practical results in the treatment of cardiac disease are obtained thus far by such observations, yet every recorded fact in medicine, however small, has its own worth, and will prove a help, whether directly or otherwise, in the future to our knowledge of disease.

One thing certainly can be claimed, and it is of importance, that certain abnormal conditions of the heart have at times been brought out which would have remained hidden had not the methods of examination as suggested been adopted.

In the case quoted, for example, had the patient been examined in a recumbent position solely, the presence of a mitral stenosis might easily have passed unnoticed. So much have I been impressed by these facts since I first noticed them, that although in many patients nothing of importance is detected by mere change of position, yet I do not now feel that I have done thorough justice to any doubtful case of cardiac disease unless I have examined the patient in both attitudes.

*THE USE OF MENTHOL THROUGH THE STOMACH-TUBE.*

BY A. L. BENEDICT, A.M., M.D.,

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IN bringing forward a new suggestion as to treatment, it must be borne in mind that it is seldom that marked originality is possible. The patent-medicine man, even if his remedy has some novel virtue, ignores his obligation to the general fund of knowledge to which he is a debtor. The writer prefers to regard this communication as a bit of granulation-tissue budding out from structures whose elements have been established by use and experience, and deriving its nurture from the current of medical thought which is kept in constant circulation.

The writer first used menthol through the stomach-tube in the fall of 1891.

CASE I.—The patient was a middle-aged man without discoverable organic disease, but suffering from atonic dyspepsia and lithæmia, which is in one sense atonic dyspepsia of the liver. The patient, in addition to the dyspepsia, was subject to occasional attacks of mild subacute gastric catarrh, which was relieved by lavage with a rather hot alkaline solution. At one of the sittings the attempt was made to introduce a menthol spray through the stomach-tube, but the attempt was not very satisfactory, and it was quite impossible to tell whether the improvement which followed was due in any degree to the menthol. At a later sitting, the menthol-spray was introduced, tasted by the patient, and was followed by immediate relief.

CASE II.—The second case was that of a delicate young married woman, not yet fully recuperated from the fatigue of bearing and nursing a child. The patient was somewhat anæmic, but the writer was called more particularly to relieve an atonic dyspepsia, with loss of appetite and occasional vomiting. So little digestive power was there that at the first passage of the stomach-tube a breakfast of milk and hominy was found almost unchanged, although it had been taken three hours before. The lavage at the first sitting was not very satisfactory. The patient was placed upon a mixture containing hydrochloric acid, to be taken one hour after each meal. About two weeks later lavage was again practised, and this time successfully, as the stomach had been properly prepared by fasting. After cleansing the stomach and removing the water, which brought away very little mucus, a two-per-cent. oily solution of menthol was sprayed through the tube. After a minute or two the patient spoke of a peculiar taste in the mouth, which she at first compared to cinnamon, but afterwards recognized as that of peppermint. Although the passage of the tube caused some discomfort, the patient expressed herself as much pleased with the relief immediately following the treatment. The hydrochloric acid mixture was continued for a few days, but the patient's recovery was so rapid that there was no further indication nor even excuse for repeating lavage. During the six months following the treatment there has been no return of the dyspepsia. The writer believes so strongly in the beneficial action of hydrochloric acid to supplement a weak digestive power that he is not inclined to over-estimate the importance of the



lavage, which in this case was mainly diagnostic, nor of the menthol application. Yet in the judgment of the patient and attending physician, some of the credit was due to the use of menthol.

CASE III.—The third patient was a woman, aged forty years, whose dyspepsia was accompanied by mild gastric catarrh. At the first use of the stomach-tube a great deal of syrupy mucus was removed, which evidently had been swallowed and partially dissolved within the stomach. This mucus was from the pharynx, trachea, and bronchial tubes. It was accompanied by a smaller quantity of denser mucus from the stomach itself. A week later, the respiratory catarrh having subsided, very little mucus was found in the stomach. Lavage in this patient's case was followed by the administration of the menthol spray. Other treatment was for the most part hygienic, and the patient's symptoms were so marked and the relief so speedy that it seems fair to ascribe the improvement largely to the use of menthol.

CASE IV.—The fourth patient was a single woman, aged thirty-nine, who came to the dispensary on account of enlarged lymph-nodes. Syphilis was suspected, mainly because the patient lived on Canal Street, but the diagnosis was not confirmed. The bowels were regular, there was complaint of vomiting and retching, lack of appetite, and, in general, the history of moderate dyspepsia, partly atonic, partly catarrhal. After five days' treatment with dilute hydrochloric acid, twenty-five centigrams one hour after each meal, without improvement, lavage was practised. The œsophagus was unusually large, and both the water and mucus were vomited around the tube. Little mucus was removed through the tube. About three pints of tepid water were used, and a five-per-cent. solution of menthol in liquid cosmoline was then introduced and soon tasted by the patient. Immediate relief was experienced, which can scarcely be attributed to mental effect, for the insertion of the tube caused great discomfort, and the patient was disposed to regard mechanical treatment unfavorably. In the nine days following, she twice reported improvement. The causes of the dyspepsia were beer and tea drinking, improper diet, and a life of exposure. Of these only the beer and tea habits were removed.

CASE V. was that of a married woman, aged forty, fleshy and apparently healthy, but constantly tired by worry and overwork. For four months she had suffered from regurgitation of food, severe gastric pain and heart-burn at intervals. On percussion the stomach was found distended with gas, the area of resonance being nine and a half by four and a half inches, reaching from a point one inch to the right of and two inches above the umbilicus, downward in a curved line to the umbilicus, and thence almost horizontally four inches to the left, thence curving again upward to a point at the intersection of the tenth rib and the anterior axillary line. Lavage brought away pieces of bread and milk-curds, the remains of a breakfast taken eight hours previously. The menthol spray was introduced as already described. About two months afterwards the patient reported considerable permanent improvement, although she had neglected treatment and had relapsed somewhat from the condition immediately following the lavage and menthol application.

CASE VI. was that of a married woman, aged forty-five, who had been sick for a year, vomiting sometimes two or three times a day, sometimes not for a week, the vomited matter containing bile but not mucus. Diarrhœa and constipation had alternated. After spraying the throat with a cocaine solution, the tube was introduced four hours after a meal, consisting of bread and tea. A little mucus, some bile, and soaked bread were removed. In spite of the cocaine, the patient suffered the usual amount of discomfort from the passage of the tube, and its presence in the stomach caused considerable retching. On account of the irritability of the stomach, an attempt to supplement the ordinary siphonage by suction from a hard rubber syringe, whose nozzle was inserted into the outer end of the stomach-tube, proved a failure, the stomach-wall closing upon the internal lumina of the tube. After stripping the tube as dry as possible, menthol and tincture of benzoin in liquid terraline were intro-

duced in the usual manner, tasted by the patient and smelled in her breath. The menthol vapor produced immediate relief of the gastric irritability, comparable to that which usually follows the filling of the stomach with warm water, but more complete, since the retching in her case did not cease till after the lavage was finished. The patient reported three times in the following week, much improved as far as the dyspepsia was concerned, but feeling too weak to have the tube passed again. As this weakness had been a prominent symptom for a year, it cannot be ascribed to the local treatment of the stomach. The patient was given a *nux vomica* tonic before meals and hydrochloric acid one hour after eating. Three weeks later the patient considered herself well of the dyspepsia and complained only of a "pain in the kidneys," which was relieved by a liniment.

CASE VII.—The seventh patient was a man, aged forty-six, who had indulged extensively in liquor and tobacco, smoking sometimes fifteen pipefuls daily. He ascribed the beginning of his stomach-trouble a year ago to the drinking of ice-water. The stomach was not dilated and little mucus was removed by lavage. After the stomach had been filled with and emptied of the menthol vapor several times, through the inadvertence of an assistant the tube was allowed to slip in three or four inches farther than the twenty-two inch mark. This was noticed while the vapor was issuing from the tube. On pulling out the tube, the internal end must have reached the lowest part of the stomach, for a considerable quantity of bile-stained water passed from the tube and then the menthol vapor again appeared, showing indisputably that the stomach had been thoroughly filled with the vapor.

The notes of Cases VIII. and IX. have unfortunately been lost, but they agree in substance with the reports already given.

The first suggestion as to the possibility of transmitting a menthol spray through the stomach-tube arose from the presence of a dirty tube when the writer was inhaling and exhaling the vapor from an ordinary hand atomizer. The sight of the cloud issuing from the nostril naturally suggested the possibility of disinfecting the stomach-tube in a similar way. The result of this experiment was satisfactory. The vapor introduced at the funnel of the tube passed through its entire length of five feet and issued from both the gastric orifices in full volume. The passage of the spray through the tube for a minute or two removed entirely the sour smell, and after forty-eight hours the odor of menthol was still very perceptible and the disinfection was apparently complete. Knowing from personal experience the beneficial action of menthol in the upper air-passages, and knowing, too, the possibility of transmitting a menthol spray through the stomach-tube, the natural sequence was the desire to test its value in affections of the gastric mucous membrane.

The value of menthol is not a mysterious one. Like the active principles of most of the volatile oils, it is anæsthetic and antiseptic. Its anæsthetic action is preceded by a slight irritation, in which occurs a local dilatation of the arterioles and, consequently, an increased blood-supply and a sense of burning.

The question might be asked, Why not introduce the menthol by allowing the patient to swallow a solution or mixture containing it? Peppermint-water, the spirits of peppermint, and a combination of menthol, salol,



and bismuth subcarbonate, are favorite prescriptions of the writer in various painful conditions of the stomach and intestine, especially when fermentation is present. In these conditions, however, the object is not so much a systematic application of the remedy to the entire surface of the gastric mucous membrane as a relief of pain and a prevention of fermentation in the stomach.

By first cleansing the stomach of particles of food and shreds of mucus by means of lavage, the stomach is put in a proper condition for thorough local medication. Were menthol readily soluble in water and if the stomach could be distended to its utmost capacity by water without danger, or at least inconvenience from the mere weight of the fluid, and were it desirable to have a dissolving fluid in immediate contact with the glandular apparatus during the stimulation caused by the presence of the menthol, then it would be perfectly feasible and sufficient to introduce the drug either by a continuation of the lavage or by having a solution of the drug swallowed. Menthol, however, is not readily soluble in water, but can be dissolved to more than the necessary strength in liquid petrolatum and in any of the corresponding proprietary preparations, such as cosmoline, terraline, and albolene. The writer believes that it is a common experience that the stomach will not readily tolerate the presence of more than fifteen hundred or two thousand cubic centimetres of water, although anatomists place the capacity of the stomach at a higher figure. If, after introducing as much water as the stomach will readily tolerate, the funnel of the tube is lowered so as to obtain the level of the fluid within, it will be readily seen that the high-water mark is an inch or more below the cardiac orifice. Percussion also verifies the conclusion that the stomach cannot ordinarily tolerate the weight of enough water to produce a maximum distention. A watery solution, therefore, could not be applied thoroughly and equally to all parts of the stomach without changing the position of the patient to an uncomfortable and impractical, if not actually dangerous, extent. It is advisable also that the rubefacient action of the menthol should be more marked than could be possible if the mucous membrane were freely bathed with a watery fluid, which by an osmotic interchange would abstract the saline contents and the secretions of the epithelial cells while the cells themselves would tend to become macerated.

The finely-divided spray of an oily solution of menthol distends the stomach symmetrically with little tendency to gravitate to the greater curvature and without straining the ligamentous and peritoneal attachments of the stomach. The vapor diffuses itself in all directions, touches almost every cell of the mucous membrane with a tiny oil globule holding in solution a small amount of menthol. In the aggregate, the clean surface of the stomach is coated with a medicated film of inert mineral oil. This film forms an antiseptic dressing for the mucous membrane, has little if any irritant action aside from the excitation of the menthol, and is, for the most part, brushed off by the first food which enters the stomach. The

action of the menthol must be almost entirely local, for the oily solution, though strong enough to act on the mucous membrane, is not used in sufficient volume to make the constitutional action of menthol noticeable.

The technique of the administration of menthol through the stomach-tube is simple. The patient should be directed to take no food within at least four hours of the time of appointment and the last meal should be a light one. Lavage is practised in the ordinary way, using plain water or a weak alkaline solution of about the body temperature and repeating the washing until the fluid returns free from shreds of mucus. The water is removed from the stomach by siphonage as completely as possible, stripping and shaking the tube to remove the water remaining in it. The contact of the tube with the walls of the stomach is apt to excite retching. Haste should be made, therefore, to distend the organ with the spray from the atomizer. The writer uses a one- to five-per-cent. solution in any of the colorless substitutes for the crude officinal liquid petrolatum. The form of the atomizer is a matter of indifference, as almost any of the cheap nickel-tube perfume atomizers will spray an oily solution. The spray is then directed into the funnel, a piece of card-board being used to prevent a rebound of the vapor from the sides of the funnel, or the funnel may be removed and the tip of the atomizer introduced into the lumen of the tube. For a minute or two the vapor from the atomizer will meet with some resistance from the small amount of water remaining in the tube, and on auscultation a bubbling may, at times, be heard in the stomach. The vapor, like the fluid previously used, should have an alternate ingress and egress. By pinching the tube close around the tip of the atomizer the stomach may be fully distended and it should then be allowed to contract upon its gaseous contents, when the vapor and even drops of water will be expelled with considerable force from the mouth of the tube. No better proof of the fact of the entrance of the spray into the stomach can be afforded than the almost invariable statement of the patient that the peppermint can be tasted in the mouth, which it can reach only by regurgitation through the œsophagus outside the stomach-tube or through the blood circulation. After having forced the vapor into the stomach and having allowed the stomach to contract upon its gaseous contents six or seven times, it is safe to assume that the walls of the organ have become as thoroughly coated as would the pharynx or the nose after the same number of applications, barring the fact that the vapor has to follow a longer course and that the surface to be medicated is of much greater area.

The value of the menthol spray has been so thoroughly demonstrated in the treatment of more accessible mucous membranes that it seems pardonable to report this new use of it without waiting for a longer series of cases or a greater lapse of time to speak more emphatically in favor of its local action on the stomach. The nine cases reported (and several others not mentioned in this paper) seem to show that the use of the menthol spray in cases of atony or catarrh of the stomach is followed by at least



temporary benefit. More than this is not to be expected, for there are few diseases which, if cured, may not return, and almost no therapeutic measures short of the knife and saw whose direct action is permanent. In fact, it is by the aid of temporary helps to tide over crises that permanent health is restored in the great majority of ailments.

Not only menthol, but a number of other substances at present used, mainly by laryngologists, will probably be found useful in certain cases, when applied to the stomach by the atomizer, through the tube. Silver nitrate is at present nearly useless in gastric ulcer and catarrh, for if an attempt is made to introduce it into the stomach in solution, most of its efficacy is wasted on the mouth, pharynx, and œsophagus; if given in pill, there is the danger of its acting too vigorously on one part of the stomach-wall and there is scarcely a possibility of its acting uniformly on even the lower portion of the gastric mucous membrane. Unfortunately, silver nitrate is not soluble in liquid petrolatum, but a watery solution may be sprayed into the stomach with the certainty that it will not act on mucous membrane till it reaches its destination and with the reasonable expectation that it will be quite evenly diffused inside the stomach.

In conclusion, the writer would guard against conveying the impression that he is very enthusiastic over the use of the menthol spray in diseases of the stomach. Of all therapeutic substances which can be introduced through the stomach-tube, probably the most useful is plain hot water, and yet the practice of lavage has been carried by some to a ridiculous extreme. The cases in which the tube is to be inserted and the menthol or other spray introduced must be carefully selected, after an estimation of the patient's endurance and when simpler means of treatment have been tried and found wanting, or when there is no probability of their meeting fully the particular indications existing in the case under consideration.

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### *THE FILARIA IMITIS.*<sup>1</sup>

BY S. D. VAN METER, M.D.,

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THIS nematode has much in its life's history that is peculiar and interesting for one who has the time and opportunity to study it. Its peculiar interest for me is its selection of the heart as its abode and the great amount of endocardial obstruction produced before causing death, as shown by the present case and the specimen exhibited. Fortunately, it is rarely found in man, although it is quite common in the dog in the Southern States and

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<sup>1</sup> Read before the Colorado State Medical Society, June, 1892.

other warm countries. The fully-developed *filaria imitis* is from seven to twelve inches in length, three-hundredths to six-hundredths of an inch in diameter, tapering at either extremity, and of a pale-yellow, waxy color, resembling strands of catgut as they are seen filling up the cavities of the heart and large blood-vessels. The male is smaller than the female, the latter being almost twice the size of the former and always found in greater numbers. Anatomically it resembles the other round worms, having a long, straight alimentary canal, with extensive reproductive organs, which almost entirely take up the remaining portion of the body. To the naked eye the cephalic and anal extremities appear the same; but under a low power the circular mouth, surrounded by several papillæ, can be seen at the head, while a little in advance of the other extremity, which is slightly curved, is found the anus.

But little is known, definitely, of the different stages of life of this parasite. Most probably the ova are taken into the alimentary canal of their victim with drinking-water. From thence it gains entrance to the lymphatics, where it further develops and passes into the venous circulation. Multiplying rapidly, they collect in the cavities of the heart in such numbers as to cause the death of the animal, who has furnished his life-blood for their sustenance, by mechanical obstruction of the circulation. Whether or no their embryos are small enough to pass through the capillaries, and develop in the arterial as well as the venous circulation, I cannot say. But from my limited observation, I am inclined to believe they develop principally in veins, and those found in the arteries originally came from the venous side of the circulation. So far as I can learn, no one has made any exhaustive study of the blood of animals afflicted with this *filaria*. Observation would, no doubt, be most interesting, and show the different phases of its development. According to Osler, in the blood of patients suffering from the *filaria sanguinis hominis*, the nearest relative of the *filaria imitis*, the embryos can be plainly seen under the microscope, and, being about the size of a red corpuscle, readily pass through the capillaries, from venous to arterial circulation. Strange to say, they cannot be found in the blood during the day, but are present at night; and stranger still, as Stephen Mackenzie has shown, if the patient reverse his habits and sleep during the day, they likewise change, disappearing from the blood at night to be present in the daytime. Observers have noticed that a certain kind of mosquito, in sucking blood from patients afflicted with the *filaria sanguinis hominis*, extracts with the blood the embryos, which undergo some slight development in the mosquito, and then, perhaps, are deposited in drinking-water, to be imbibed by some other victim. The fact that these embryos have only been found in one kind of mosquito has led to the belief that this particular mosquito is essential to the cycle of their life, and hence that they are confined to countries where this insect is found. But the more likely explanation of their being found in those countries which are always warm, lies in the fact that such countries offer suitable



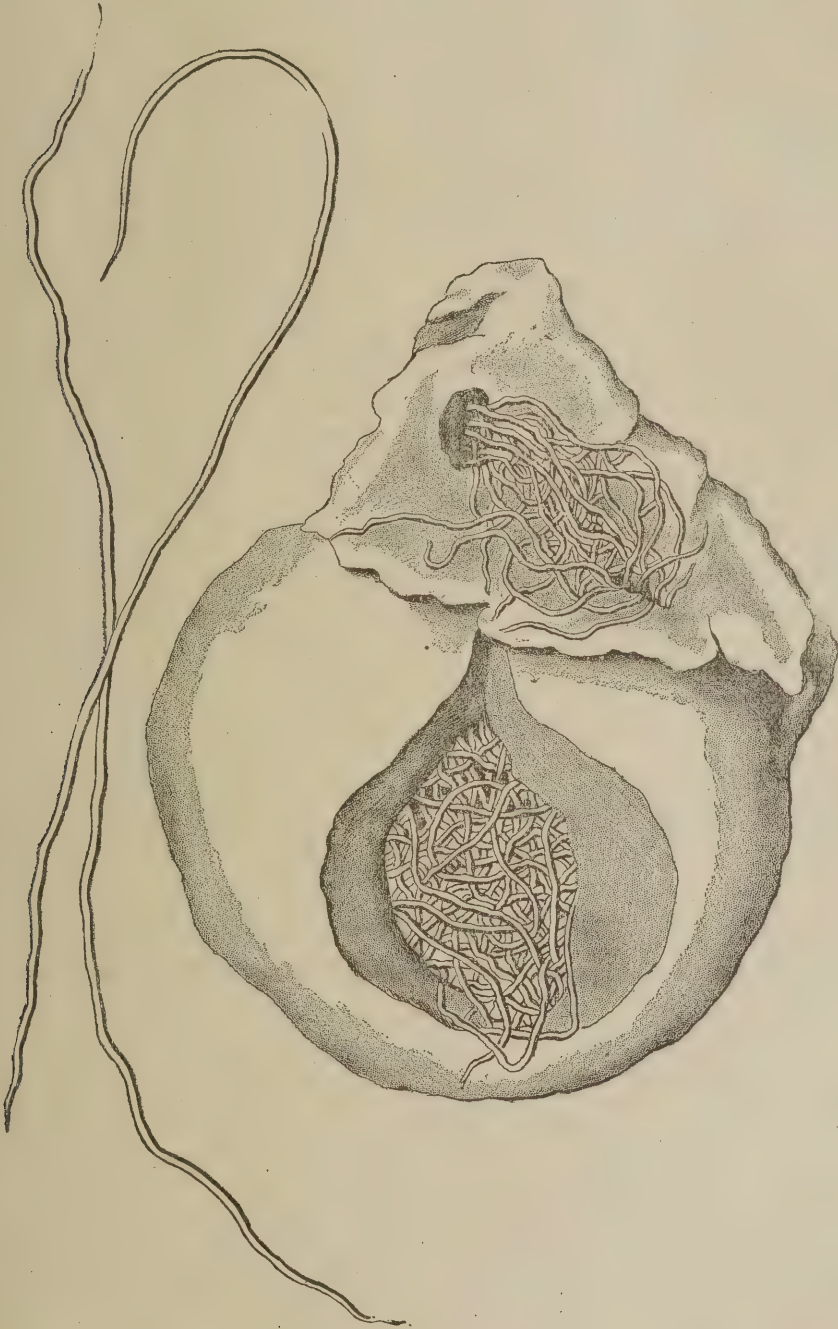
water, warmth, and climate, which, as Leidy has shown, are necessary for their life and development. However this may be, it is my desire to call attention more to the great amount of endocardial obstruction that may exist before causing death—as is proven by post-mortem examination of animals dying from the *filaria imitis*—than to study their zoönomy. The following case serves well to illustrate what the heart can stand, and shows the train of symptoms produced by these blood-thirsty parasites.

Some months ago a friend requested me to look at a fine water-spaniel, which had been recently sent him from the low, marshy lands of Arkansas. For some days past he had been sick, refusing all food, and showing marked signs of discomfort. A week previous he was seen to fall in a faint, and his urine was noticed to be very bloody. When I first saw him the poor animal was panting, restless, and wore a most anxious look, which appealed to one for aid, as much as would be possible by any supplication of words.

His respirations were between 35 and 40 per minute; heart-rate about 140. The examination of the lungs was wholly negative, but the respiratory sounds were almost entirely masked by the continuous cardiac murmur, which was audible over the lower portion of the thorax. The first and second sounds were indistinguishable and very faint. On palpation, a marked thrill could be felt over the lower half of the chest. The cardiac impulse was diffused, and imparted that sensation of labored action to the hand so significant of dilatation. The opinion given was that the dog had some cardiac lesion, the exact nature of which I could not make out, but that dilatation was taking place. That, perhaps, coming from a lower to a higher altitude, had proven too much for the already disabled organ. Two days later he died, and being desirous of completing my diagnosis, I made a post-mortem examination, with the following result: All organs passively congested—most intensely so. The kidneys were so engorged with venous blood that they were of an indigo-blue color. Their pelves and the urinary bladder were filled with a liquid looking more like blood than urine. Each and every part was carefully examined, and nothing pathological, save the passive congestion, was found, until the heart was reached. On opening the pericardium we found no fluid. The heart appeared hypertrophied, judging from the size of the animal, and spherical as if dilatation had progressed to a marked degree. On severing the blood-vessels at the base, I cut through what at first was supposed to be a fibrous clot, but which proved to be a roll of *filariæ*. (Fig. 1.) When the ventricles and auricles were laid open, they were found filled with a tangled mass of these parasites. They extended into the vena cava, the pulmonary artery and vein, but not into the aorta. On close inspection the intra-auricular septum was found to be perforated, and a roll of fifteen or twenty *filariæ* plugging the perforation. This roll was continuous with the mass in the left ventricle, which seemed to be doubled upon itself; and from all appearances I am of the opinion they gained entrance to the left heart through

the intra-auricular septum. Either that, and the animal died before the blood-current had time to carry them into the aorta, or else they had the power to stem the current of the blood, for not one was found in the aorta. Instinctive anatomists they were, to choose the thinnest structure between the venous and arterial systems, if, in reality, they bored their way through the intra-auricular septum.

FIG. 1.



As can be plainly seen in the cut (Fig. 1), the mass of *filariae* prevented every leaflet of the valves from performing its function. They not only obstructed the circulation by filling up the lumen of the vessels and heart, but rendered all the valves incompetent. They are so matted together that it is impossible to count them, but I feel sure there are



not less than two hundred and fifty or three hundred filariæ in the ventricles, auricles, and large blood-vessels. Though careful search was made, none were found on the arterial side of the circulation, except those mentioned in the left ventricle and auricle, and on the venous side they did not extend farther than the abdominal vena cava. Contrary to what would be expected, the blood passing through this matted and tangled mass of filariæ showed not the least sign of an ante-mortem clot, and manifested but little tendency toward coagulation after death. This suggests that they fed upon or in some way removed the fibrin-producing factors, for certainly, had they not, such sieve-like action should have produced fibrous clots.

In studying this case, an observer's first and most natural impulse would be to ask, How is it possible for an animal to live until these filariæ collect in such numbers? It seems marvellous; but the specimen shows the amount of endocardial obstruction the heart can stand. Upon this point, and as to the absence of ante-mortem clots, I would be pleased to hear discussion. In conclusion, I may say, further than prophylaxis,—by sterilization, by boiling water that is contaminated with the ova,—one would hardly entertain an idea of any effective treatment. When an animal is once infected, it is only a question of time until it dies. Yet from observation of dogs dying of filariasis, it is known the condition may in some cases exist over quite a space of time, and in others be of rapid course. Fortunately, but few cases have been reported in man; hence, the malady does not attract attention, and create fear and horror, as do the more common fatal or incurable diseases.

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## *HERPETIC AFFECTIONS OF THE MOUTH AND PHARYNX IN CHILDREN.*

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WHAT is commonly known as a "fever-blister," or herpes labialis, has from the earliest days of medicine been associated in its causation with some disorder of the gastric function. There is every reason to believe that such is a fact, the immediate cause of the eruption being an irritation of a terminal nerve-filament by a peculiar poison generated through some disorder of normal digestion by the fever process. For this reason herpes is now classed by dermatologists as a neurotic eruption.

Now, as well as herpes affects the lips in some cases among children, the eruption may also appear within the mouth, on the mucous membrane of the lips, gums, tongue, palate, and tonsils. It will always be found that some degree of gastric disturbance, either with or without fever, has preceded the eruption in this locality.

In a large dispensary practice among children I have seen only a few *typical* cases of herpes of the mouth and pharynx. Here all doubt as to the correctness of the diagnosis was settled by the appearance of the vesicles upon the skin of the lower lip and running back in almost a direct line, the eruption, in the form of small, aphthous-like ulcers, could be traced upon the mucous membrane of the lip, gums, dorsum and edge of the tongue, and upon the tonsils. Without the characteristic eruption being demonstrated upon the skin of the lower lip, such cases might easily be mistaken for so-called aphthous stomatitis, or even follicular stomatitis. And this is the point that I desire to make in this short contribution. May we not rightly regard all of these affections of the mouth in children, excluding, of course, thrush, which is of parasitic origin, as being *herpetic*, even though they may not always present all of the typical features of the eruption?

Given a child whose nerve-cells are subnormal in point of nutrition, either from hereditary transmission or improper food, and such a child, other things being equal, will be far more liable than another child of a higher grade of nerve-organization, to the action of certain products of abnormal digestion, acting as a poison upon the nerve-cells. These poisons, I think, may be identified as the ptomaines which are the product of fermentation caused by the presence of germs acting upon the albuminoids of the food. When the germs are pathogenic in character these poisons are now known as toxines. Now, in a young child, whose nerve-cells are decidedly more sensitive to disturbances of nutrition than at an older age, the slightest departure from the normal in physiological function will often be the means of producing an impression upon those cells controlling the terminal nerve-filaments,—in other words, the trophic nerve-fibres. This peculiar predisposition to irritating influences may even be witnessed in adults where local contact of certain substances, such as pepper, shell-fish, or even saliva from kissing, will produce herpes of the lips.

I have for some years entertained the opinion that the affection so commonly seen in children, known as follicular tonsillitis, or *angina lacunaris*, is due to gastric disturbance, either from improper food or over-feeding. This view is strengthened by the result of treatment, which is a confirmation of the old aphorism that “the cure shows the disease.” My treatment for this affection is entirely internal, the difficulty of making local applications in cases of very young children being thus avoided. I give calomel in the form of the palatable tablet triturate, one-tenth grain each, every two or three hours, for two or three days, and the successful result is prompt.

There is great danger, however, in a careless observer making a mistake in diagnosis in this affection, especially in view of the fact that there is a close resemblance in the appearance of the parts in follicular tonsillitis to mild cases of diphtheria. In fact, there is a determined disposition on the part of some authorities in pediatrics to call all affections of the pharynx,



where there is the appearance of an exudation, diphtheria. Such a course would undoubtedly be safest, on the whole, for the welfare of the general community, but at the same time our advance in the knowledge of medicine would be experiencing a tedious delay. I think that ordinary care in observation will overcome any danger of likelihood in spreading such a serious contagious disease as diphtheria. The exudation in mild forms of diphtheria, however slight in extent, is always uniform and consistent, even though it may not be extensive enough to be deeply imbedded in the mucous membrane; while the exudation that covers the follicles in follicular tonsillitis, aphthous stomatitis, and typical herpes of the pharynx is pultaceous, breaking down easily when the parts are cleansed with a dossil of cotton-wool. Let it be understood that I am considering the difference in the appearance only of the exudation; bacteriological examination would settle all doubts of diagnosis later on, but there are times when the physician must settle the matter at once.

I have referred to follicular tonsillitis at such length for the reason that I am inclined to place this affection, as well as aphthous and follicular stomatitis, in the class of herpetic affections. They are, in my opinion, due to a similar original etiological factor as herpes, and in this regard I am pleased to find myself concurring with the views of Dr. Forchheimer, as expressed in his article on "Aphthous Stomatitis" in the May number of the *Archives of Pediatrics*. No better treatment in these affections of the mouth and pharynx in children can be found than fractional doses of *calomel*, given in the form of the tablet triturate, one-twentieth to one-tenth grain each, every two or three hours. In such doses calomel acts as an undoubted stimulant of the liver, one of the five functions of which organ it is to destroy the poisons formed in the process of both normal and abnormal digestion of food, and so prevent their entrance into the general circulation of the blood.

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*PEMPHIGUS HÆMORRHAGICUS SEU PURPURA BULLOSA; REPORT OF CASE, WITH REMARKS.<sup>1</sup>*

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DURING the last few years the discussion of the various forms of bul-  
lous and vesicular eruptions has been actively carried on. Duhring's  
papers on "Dermatitis Herpetiformis," together with articles on the same  
subject by others, have directed special attention to this dermatosis. The  
result has been its establishment as a distinct clinical entity.

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<sup>1</sup> Read before the Dermatological Section of the American Medical Association,  
Detroit, June, 1892.

The study of these affections has been complicated by their, often close, resemblance in gross clinical appearances to, and their not improbable pathological connection with, other recognized groups of skin-diseases, such as pemphigus, herpes, and the bullous varieties of erythema multiforme; and it is not surprising, bearing in mind this relationship, that differences of opinion should sometimes arise—among experts, as well as those less skilled—as to just which class should receive certain forms of these eruptions standing on the border-line, and which, clinically, present appearances that would seem to justify their arrangement under either the one or the other head.

The introduction of a new order into an already existing classification is apt for a time to cause confusion, especially if its borders cannot be sharply limited, or if it includes forms which could be or had been arranged under the old heads.

We do not readily accept new beliefs and theories,—particularly in medicine,—and yet when once they are accepted, we are apt to be too ardent converts. I do not think that in this case there is any special danger; nor do I think that we will find examples of Dühring's disease in every case of vesiculo-bullous eruption which comes under our observation. Yet in view of the fact that there are splendid opportunities for confusion, even for the specialist, in the diagnosis of these pemphigus-like affections, I have thought that it might not be uninteresting to review the subject of pemphigus and give the history of a case offering special marks of interest in a clinical way, which, though far from typical, I have ventured to class as one of the varieties of this disease.

Pemphigus is an ancient affection. It was referred to indefinitely by Hippocrates, though Lepois (1618) was the first who gave a clear description of it as we understand it to-day. But in spite of its age it is and has been a rare disease. According to Anderson, of Glasgow, and Bulkley, of New York, it is encountered about once in five hundred cases, while Kaposi reports it as occurring somewhat more frequently,—once in three hundred,—but weakens the value of his statistics by including in them cases not usually classed under this head by others. But while any form of the affection ranks among the rarer varieties of skin-disease, I am inclined to believe that it occurs more frequently than these statistics would indicate, and most practitioners have seen or will see one or more cases of this pathological condition, so that anything which may increase our knowledge of the variations in its clinical aspect will prove interesting and valuable.

It would seem as though any affection which had been so long before the profession could be easily defined and labelled. This, however, does not appear to be the case, for I find, from a comparison of writers, that while in the main there is a general agreement, there are also certain points of disagreement—explainable, doubtless, from variations in individual experience—which seem confusing and misleading. As examples of such contradictions I find one author (Liveing) asserting in his definition of pemphigus, that “it generally runs a protracted course, and leaves on



the skin dark purplish stains, but does *not* scar," while others affirm just as explicitly that ulceration and scarring may occur (Neumann, Morris). Again, another writer says, "No case should be called pemphigus the bleb of which begins in the form of *macules* or large *papules*;" while Kaposi, after speaking of redness, papulation, and wheals as accompanying lesions, calls attention to the fact that the "blebs arise partly on the erythematous spots and wheals and partly on the previously normal skin." These disagreements only go to show that no two cases of pemphigus are alike, that different phases come under the eyes of different observers, and that only a combination of all the known phenomena can furnish us with a true and sufficiently comprehensive picture of the disease. Under such circumstances a concise and at the same time all-embracing definition becomes almost an impossibility.

The affection can perhaps be best defined in the words of a recent author (Neumann, *Atlas der Hautkrankheiten*), who says, pemphigus is "a disease of the skin in which the epidermis is raised into a bulla by a clear or, from the presence of pus or blood, either yellow or dark-colored fluid. These bullæ vary in size from a pea to a nut, an apple, or even the palm of the hand or more, and appear on various parts of the skin and mucous membrane; they are either tensely stretched or the epidermis is wrinkled. The borders of the bullæ and the surrounding skin are either normal or reddened. They stand in groups or arranged about a central bleb, and are limited to particular regions or scattered over the entire surface. They either rupture, their contents drying on the surface in varicolored crusts, or else the contents become partially absorbed, the bleb-cover remaining unbroken, and coming away in the form of a scale or plate of dead skin. After the healing of the bullæ a white or, more generally, pigmented spot—in exceptional instances, a *shallow scar*—remains. The pemphigus bullæ develop either *without* any previous erythema or *with* redness and swelling, or with manifold forms of erythema or with wheals," etc.

If now we add to this the *sine qua non* that these bullæ must appear in successive crops, which may be repeated for weeks, months, or even years, that there may or may not be constitutional symptoms of fever, chills, headache, anorexia, insomnia, etc., and that the subjective sensations are either absent or consist of burning, heat, or itching, either mild or very aggravated, we have a fair picture of pemphigus before us.

Having thus outlined the principal symptoms encountered in ordinary pemphigus chronicus, permit me to relate the history of a case which a somewhat careful search of the literature at my disposal shows to be unique in several particulars.

F. S., born in Italy, and aged twenty, came for treatment for an eruption which when first seen was *mainly* confined to the back of the neck, extending as low as the spines of the scapulæ, the outer and posterior surfaces of the arms, and the face. On the skin of the neck and shoulders were several patches of redness about the size of the palm of the hand, and of various shapes. They were shiny-looking, as if the

epidermis had been recently formed, and suggested as much as anything the appearances seen on the healing of a burn. On the arms were similar patches, some larger and some smaller, separated from each other by intervals of healthy skin. They were swollen and elevated above the surrounding surface, and of a deeper, duskier red than those on the neck.

Upon these patches were superficial ulcerations and excoriations which were either crusted over or showed irregular granulations with slight discharge. The specially interesting lesion, however, was a number of bullæ irregularly distributed over these diseased surfaces. They were of different sizes, varying from a split pea to a silver dollar, the larger ones standing alone, while the smaller were usually grouped. The contents of these blebs consisted of blood or bloody serum for the most part, though some were noted which were purely serous. Their shape was irregular, roundish, or ovoid. They were all more or less elevated above the surface of the skin, and, while in some the prominence was slight, in others it was as much as one-eighth to one-fourth of an inch. Generally speaking, the blebs were flaccid, with somewhat wrinkled surfaces, but a few were seen having tensely-distended walls. The color varied with the contents, from a faint straw to red, reddish-brown, or even blue-black. The origin and subsequent course of the blebs varied. As a rule, redness and swelling of the part about to be attacked occurred first, and on this erythematous and swollen base the bulla developed, covering in some cases the whole, in others only a portion of the surface. The evolution was rapid, a few hours at most being required for the full development of a bleb, which later either burst, the contents forming the crusts already mentioned,—under which in some cases ulceration went on,—or absorption took place, accompanied by the display of colors in the underlying tissues seen during the disappearance of ecchymoses. In addition to the bullæ there were some red macules and papules scattered over the face, forearms, and hands, which were evidently hemorrhagic, since they did not disappear under pressure. That the reddened patches on the neck and arms, first mentioned, were the result of this bleb-formation with accompanying phenomena subsequent observations proved.

There were also many old scars which marked the site of previous eruptions. The eyelids were markedly swollen, the upper much more than the lower. The color of the former was a deep red which subsequently became black and blue, and on one of them was a reddish-brown crust. The color of the lower lids was normal. The ears were superficially ulcerated, and on one of them was a large bleb filled with serum. On the chest and abdomen were three large tense serous bullæ.

The subjective symptoms were moderate pain and tension of the skin a short time prior to the appearance of the blister, and, as a matter of course, more or less pain and soreness where breaking down of the bulla had been followed by ulceration.

There was no itching or other feeling of discomfort.

The patient has suffered with the disease for thirteen years: it began when she was seven and has lasted, more or less continuously, ever since. She says that it first made its appearance by an outbreak of universal redness,—attributed to eating too freely of rich fatty food,—in the course of which a large number of “water-blisters” developed on various parts of the body. She recovered from this attack, but suffered a relapse—the blisters reappearing—shortly after, and for the following eight years was afflicted every three or four months with similar outcrops. She came to this country when she was fifteen years old. During the voyage she had an unusually severe attack, from which she recovered, and remained well during the following winter, the longest period of freedom from the eruption which she had enjoyed. On the advent of summer, however, the disease returned, but now began to take on a new phase in that the blisters, hitherto filled with serum, began to grow bloody, and the periods of immunity from eruption were far shorter.

In 1889 she came into my hands presenting the appearances already described



and suffering with very frequent relapses; her general health was fair, though she complained of lassitude, was easily fatigued, and had palpitation on exertion. The skin was pale and anæmic, and the complexion muddy. When extensive crops of the eruption were about to appear, she said she had headache, was feverish and chilly, though the temperature (taken for a number of days while she was an inmate of the hospital, and during which time she suffered with extensive and rapidly repeated attacks) varied only one-half a degree from normal. Her appetite was good, except during these "feverish fits," as she calls them. The bowels were somewhat constipated. Menstruation began at sixteen. During the first eighteen months the function was very irregularly performed, but since then has been normal.

Repeated analyses of the urine, during the early part of the time the patient was under observation, showed no deviation from health save an almost constantly low specific gravity (1010-1015) and a pale color. Recently, however, traces of albumin with free blood and hyaline casts have been found.

Heart and lungs are normal. There are no rheumatic symptoms, and there have been no hemorrhages from the mucous membranes. The family history is excellent; all are living, and all are in good health. None have suffered from any form of skin-disease. There is no trace of syphilis either in patient or family.

During the three years that the patient has been under my care no new developments have occurred. The eruption has pursued substantially the same course.

The outbreaks for the first two years were very frequent, bleb after bleb appearing, either on old or new places.

There have, of course, during this period been great variations as to size and number of bullæ, and also as to their contents. Sometimes they have been specially hemorrhagic, at other times mixed lesions—the same bulla containing both blood and serum—have been observed. During the last year there has been a marked improvement so far as hemorrhagic blebs are concerned, there having been a decided diminution in their number.

From what has been said it will readily be seen that the eruption under consideration is *not* such as is ordinarily encountered in pemphigus. It presents characteristics allying it quite closely both to purpura and to pemphigus. I have, therefore, called the case one of pemphigus hæmorrhagicus or purpura bullosa. I think, however, it should be classed rather with the bullous than with the hemorrhagic affections, and so prefer the former name.

My reasons for this are briefly as follows:

First, the consideration of the disease from its beginning to the present time—*i.e.*, in its entirety—seems to point to this.

You will recall that during the first eight years the bullæ were *non-hemorrhagic*, and it is only during the last five years that they have shown this characteristic, which at present is again diminishing, the patient improving and the disease returning to its original form of development. In other words, the case seems to me, when looked at from all points of view, to be one of pemphigus, to which, during its course, the additional phenomenon was added of blood in the bulla contents; accounted for probably by the peculiar constitutional changes resulting from the delayed beginning and irregularity of menstruation. The frequency of bloody blebs constitutes a marked feature of the case, and justifies the use of the

adjective hæmorrhagicus as indicating this peculiarity. I should not consider that a pemphigus presenting only an *occasional* hemorrhagic bulla ought to be thus designated.

Second, the lesions have been bullæ and large vesicles, which are typical of pemphigus, not purpura.

It is true that in any of the forms of purpura we may meet with bullæ, but they are few, numerically, relatively to the petechiæ, ecchymoses, etc., and constitute a side feature in the case, while in the present instance just the reverse is true, hemorrhagic symptoms—other than the blood in the blebs—being relatively scarce, and bullæ, few or many and constantly recurring, constituting the principal features. The absence of pain in and swelling of the joints and of other rheumatic symptoms serves to distinguish it from rheumatic purpura complicated by bullæ. The persistence of the disease is another mark pointing to pemphigus rather than purpura, for, while purpura may last for years, pemphigus is more apt to do so.

Having thus stated my reasons for the name and classification, permit me to note two or three of the noteworthy characteristics of this anomalous case. First, its marked chronicity and frequent relapses. It has existed now, to my knowledge, for three years, and, accepting the history, had a prior being of ten. Chronicity is, it is true, a symptom of pemphigus, and a diagnostic one, but it is relatively rare to find it so well marked. Various writers have reported bullous eruptions, hemorrhagic and non-hemorrhagic, which have persisted, in recurring attacks, for many years; but all of these differ in many particulars, and none of them, so far as I am aware, note such constant recurrences of bleb crops as in this case.

Finally, the scars remain to be spoken of. These are unusual sequelæ of pemphigus, occurring so rarely that some writers, as already mentioned, affirm their non-existence. That they *are* occasionally met with, the present case and statements of others (Steiner, Neumann) prove. There is nothing peculiar in their appearance to distinguish them from the cicatrices of any ulceration, and they are only mentioned for their rarity and as showing what may occur when pemphigus is accompanied by general constitutional debility.

I have, from lack of time, only attempted to differentiate this case from the one with which it would be most apt to be confounded at first sight,—viz., purpura,—believing that the other diseases, as dermatitis herpetiformis, erythema multiforme, urticaria bullosum, which might be mistaken for pemphigus, present symptoms sufficiently exceptional to enable them to be distinguished from it.

Pathologically or etiologically this case has brought us no nearer the solution of just what morbid conditions underlie this class of diseases. The consensus of opinion seems to be to regard the nervous system as at fault, though whether it be a vaso-motor-centre defect or a tropho-neurosis is still hypothetical. Certain it is that various nervous lesions, either central or peripheral (one or both), have been frequently found associated with bullous



eruptions, and the exciting causes sometimes given, as mental worry, chilliness, and menstrual derangements, point in this direction.

We can, however, assert nothing positive, and must content ourselves either with *this* assumption or with that of Barensprung, who attributes it to a "depraved state of the system caused primarily by the blood."

As to treatment little needs to be said. The patient was put on a vigorous tonic course, consisting of iron, strychnine, cod-liver oil, quinine, etc., under which—or in spite of it—the general condition improved; both ergot and arsenic were also tried, apparently without any result, the latter drug, usually so effective in bullous eruptions, being pushed to the full limit and given for a number of months.

The local applications which gave the most relief were a weak lotio nigra and Lassar's paste.

It was not my intention to consume so much of the time of the section by the report and remarks on this case, but if I have succeeded in calling attention to the protean manifestations of pemphigus and the possible presence of morbid phenomena not usually encountered my purpose will be accomplished.

# REVIEW OF MEDICINE.

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## MEDICINE.

IN CHARGE OF JUDSON DALAND, M.D.,

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ASSISTED BY

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**Nitro-glycerin and Ammonia as Cardiac Stimulants in Cholera.**  
(*St. Petersburger Medicinische Wochenschrift*, No. 36, September, 1892.) By  
Dr. J. J. Trussewitsch.

Under certain conditions these drugs have been found to be very efficient. In the algid stage of cholera, when the blood-vessels are almost collapsed but a faint pulsation can still be felt, nitro-glycerin acts very promptly in a one-per-cent. alcoholic solution, of which one or two drops are to be put on the tongue. The effect of this is to produce a redness of the skin, a feeling of warmth, and a slight perspiration. The dilatation of the arteries and arterioles of the skin brings about two results :

(1) The excess of blood is diverted from those regions which are over-filled to those parts which have been deprived of blood by narrowing of the blood-vessels. In this way a transfusion of blood occurs, so to speak, from one region to another, but within the limits of the organism, and, therefore, without any loss of blood to the patient.

(2) The dilatation of the peripheral blood-vessels lessens the work of the heart by decreasing the blood-pressure, and that organ begins to beat stronger, producing a richer and more rapidly moving current of blood.

These changes can readily be demonstrated on the sphygmograph. So that, by the use of this drug, it is possible to employ the maximum strength of the heart with the minimum strain on the nervous centres, which in cholera ought especially to be protected.

Similar favorable results have been observed in the treatment of seasickness, migraine, asthma, angina pectoris, as well as acute congestion of the lungs and other organs, with nitro-glycerin. That this drug is an excellent and reliable stimulant is proved by the fact that many authors recommend it for cases of prostration. Some of the writer's patients, suffering from general exhaustion or from the results of excessive nervous strain, considered that the effect of one drop of the one-per-cent. solution



was equivalent to the stimulating effect of a glass of good wine. No water should be added to the solution of this powerful drug, as it acts best in a one-per-cent solution, undiluted; and while this solution, given in doses of one or two drops, may be administered three or four times a day, it should not be given in larger doses.

Dr. Trussewitsch considers that a solution of ammonia is one of the very best cardiac stimulants. He employed subcutaneous injections of from three to eight drops of the saturated solution diluted with a syringeful of water. The action of the drug is prompt and continues for some time. The results were very satisfactory, even in cases of apparently hopeless prostration. Many times impending death was warded off by its use. Combinations of ether, camphor, or musk with ammonia, in varying proportions, acted no better than ammonia alone.

Solutions of ammonia may also be administered internally, and the writer has observed very excellent results follow the use of this drug, together with common salt and rhubarb, in a former epidemic of cholera.

As a disinfectant for the bowel contents, "atukos" water may be employed with advantage, after being diluted two or three times. Among other constituents it contains thymol and borax. Its antibacteric properties have not been determined as yet, but Lister, Mosetig, and others have given a favorable opinion of its antiseptic power.

**Aceton and Diacetic Acid; their Detection and Clinical Signification in the Urine.** (*University Medical Magazine*, October, 1892, p. 1.)  
By Dr. James Tyson.

After detailing several tests for these substances, the writer considers their clinical importance when found in the urine. Traces of aceton may be found normally, constituting physiological acetonuria, and its presence may have little or no significance. Diacetic acid, on the other hand, never occurs in normal urine, and diaceturia is a most dangerous complication.

Acetonuria often accompanies diabetes, but is not necessarily associated with it or with glycosuria, and while its development in diabetes is sometimes accompanied by very unpleasant symptoms, as headache, loss of appetite, and deranged digestion, all of short duration, it is otherwise of little significance, except as a possible precursor of the diaceturia, which often succeeds it in this disease. It seems to be a result of continued high temperature, or at least accompanies diseases attended with such a symptom, and a lowering of temperature is followed by a fall in the quantity of aceton, while a return of high temperature is followed by an increase in aceton. Rarely its presence is responsible for a set of symptoms in which restlessness, excitement, and delirium are the most conspicuous, constituting a sort of auto-intoxication, the symptoms of which pass away entirely with the disappearance of the aceton.

What is commonly known as diabetic coma, according to von Jaksch, is the result, not of aceton in the blood, but of diacetic acid; although it is

true that it is often preceded by long-continued acetonuria. It is commonly seen in advanced cases of diabetes. Drowsiness is added to the usual feeling of weakness and depression, which may deepen into coma or pass away, the diaceturia continuing. Sometimes these symptoms are preceded by excruciating muscular pains.

As a rule, there is no relation between the amount of sugar and diacetic acid eliminated, although a sudden diminution of glycosuria is sometimes followed by the appearance of a large amount of diacetic acid, coma, and death. There is a febrile diaceturia which accompanies such conditions as the acute exanthemata, pericarditis, pleuritis, perityphlitis, typhoid fever, miliary tuberculosis, tubercular phthisis, and pneumonia. Von Jaksch proposes to substitute "coma diaceticum" for diabetic coma as a term for all of those cases of coma, from whatever remote cause, accompanied by diaceturia.

There appears to be also an idiopathic diacetæmia or auto-intoxication by diacetic acid, which manifests itself by vomiting, dyspnœa, and jactitation, soon terminating fatally. This condition, very grave, but yet rare in adults, is said to be more frequent in children, and correspondingly less serious.

The conclusions of von Jaksch as to the relations of these two substances briefly summarize the knowledge on this subject :

1. Aceton is an oxidation product of albuminous substances.
2. It is found largely increased in the organism under certain pathological states, and then may cause toxic symptoms. If the quantity of aceton produced is enormously large, it unites with certain acids produced in retrograde albuminous metamorphoses ; perhaps with formic acid only, producing diacetic acid ; perhaps, also, in part with another series of similar acids, which may even be such volatile substances as are contained in evaporated urine, and out of which by oxidation aceton may arise.

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## THERAPEUTICS.

IN CHARGE OF ALEXANDER D. BLACKADER, B.A., M.D.,  
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A Brief Summary of the Clinical History and Treatment of over Two Thousand Cases of Alcoholism. (*Medical News*, July 2, 1892.)  
By Thomas S. Latimer, M.D.

In this summary Dr. Latimer records his experience in the treatment of two thousand and twelve cases of alcoholism in connection with the Baltimore jail. His conclusions are as follows: 1. That the clinical phenomena attending excesses in the use of alcohol are the direct result of over-stimulation, and are not due to the abrupt withdrawal of the stimulant. 2. That the desire for them almost uniformly persists. 3. That alcohol is unnecessary and usually hurtful in the treatment of such cases, and its abso-



lute and immediate withdrawal is of the first importance, even in cases characterized by great feebleness. That forced feeding is rarely necessary, and that for the protection of the patient no kind of bonds is called for. The incessant walking of these patients in their cells, Dr. Latimer thinks, tended to the induction of sleep at an earlier period than would otherwise have been the case.

**Cimicifuga in Uterine Disorders.** (*American Therapist*, July, 1892.)  
By Dr. Boardman Reed.

The writer recommends the exhibition of five to twenty drops of the tincture several times a day in scanty menstruation, especially in maiden ladies. Small doses, one drop every one or two hours, will often promptly relieve frontal headache due to mental fatigue, or any kind of headache resulting from pelvic congestion. Two or three drops of the tinctures of cimicifuga and gelsemium, every hour or two, are among the most certain means of bringing on the menstrual flow when delayed by passive congestion, cold, grief, or other similar cause, and have a similar action on the lochial discharge after parturition.

**Acute Mercurial Poisoning.** (Eine letal verlaufere acute Quecksilber-vergiftung, entstanden durch Einreibung von grauer Salbe. *Berliner klinische Wochenschrift*, June 20, 1892.) By Dr. Sackur.

A case is recorded in which severe toxic symptoms, and, finally, death on the sixth day, took place from the inunction of mercurial ointment on a wrist, where apparently an attack of lymphangitis had supervened on a sprain. The patient was a girl, aged twenty; the amount of ointment used was small, but there were some open cracks on the skin of the hand. The symptoms which ensued were vomiting, dysenteric stools, with tenesmus and albuminuria; later on gangrenous gingivitis and glossitis, with moderate salivation. There was great prostration, but the mind remained clear to the last. Kaufmann says that nephritis, septicæmia, and anæmia are contra-indications to the use of mercury. The writer attributes the rapidly-fatal issue in this case to the presence of marked anæmia, with commencing septic processes. A certain amount of idiosyncrasy was doubtless also present.

**Chloralamide.** (*Rif. Med.*, July 8, 1892; *British Medical Journal*, August 6, 1892.)

Piccinini, as the result of numerous experiments, finds chloralamide less rapid and less effective, though at the same time less injurious, than chloral hydrate. In guinea-pigs and rabbits, in proportion to the dose, it slows the respiration, reduces the temperature by two degrees, and weakens the reflexes, and it has no irritating action on the alimentary canal. In dogs it increases diuresis, and diminishes the electrical reaction of muscle, as also that of the cortex, subcortical region, and internal capsule. In man no hypnotic action, during the daytime, was produced by doses under thirty

grains. As a result of clinical observations on twenty-two cases, he believes that chloralamide is a sure, but somewhat tardy, hypnotic in affections not accompanied by much restlessness, and that it is most useful in cases of melancholia, on which, moreover, it appears to exercise a favorable effect. In idiocy with hallucinations, in quiet paranoia, and in acute dementia its effects were good, but it often failed in mania and in progressive paralysis. Sphygmographic tracings showed that when the drug was given in doses of forty-five grains, the radial pulse became fuller while the carotid became smaller; when the patient was awake these conditions were reversed.

Dr. Charteris (*British Medical Journal*, June 18, 1892) recommends strongly a mixture of chloralamide and potassium bromide for sea-sickness. A laxative is necessary before sailing, and a dose, containing thirty grains of each of these drugs in solution, should be taken an hour before rough water is reached. Refreshing sleep supervenes, and the violent tossing of the steamer is said to produce no disagreeable sensations.

**Solution of Hydrogen Dioxide.** (*New York Medical Journal*, August 6, 1892.)

Dr. Herbert Smith, of Yale Medical School, and Dr. Edward Squibb, of New York, each contribute a short article, stating the results of careful examinations of numerous samples of hydrogen dioxide, as manufactured and dispensed by even good chemists. Hydrogen dioxide, when pure, is unstable, and, therefore, in commerce is found only in dilute solutions. A convenient way of indicating the strength of these dilute solutions is by stating the number of volumes of active oxygen which the given solution contains. Almost all the makers send out what they call, and sell for, a fifteen-volume solution. Dr. Smith examined fifty samples of such, obtained with care. Of these the strongest proved to be only a nine-volume solution, while some were absolutely valueless. Dr. Squibb examined fresh specimens obtained from the best manufacturers. The strongest reached a ten-volume strength, and several only reached a seven-volume strength. While a little free acid is absolutely necessary for the safe keeping of all solutions of hydrogen dioxide, more than is needful becomes hurtfully irritant. Many of the samples examined were found much more acid than was necessary, and in two the excess was inexcusably great. Dr. Squibb says solutions of about three-volume strength are needed for gargling, and of about five-volume strength for spraying. To obtain the best effects the solutions should always be used as strong as they can well be borne, but when diluted for use, according to their fifteen-volume labels, they are often useless.

**Hydrochlorate of Phenocoll.** (*Lancet*, August 20, 1892.)

This drug since its introduction has been known to have a certain influence in fever, rheumatism, and neuralgia, and to favor the elimination of nitrogen. To define this influence more exactly a series of experiments was made in Professor Eichhorst's clinic, in Zurich, by Dr. P. Balzer.



The hydrochlorate did not produce any dangerous symptoms, or any disagreeable effects, in any of the cases experimented on, except in two patients, who suffered from cyanosis, though the remedy was administered in daily doses of a drachm, or a drachm and a half. In doses of fifteen grains, it is a good and speedily acting antipyretic, but not preferable to phenacetin or antipyrin. In proportion to its antipyretic effect, the pulse generally becomes slower, but not in a corresponding ratio to the decline of temperature. In large doses (sixty to ninety grains per day) it is an effective anti-rheumatic remedy, and may be administered when salicylic acid is contra-indicated. It also acts beneficially in those cases of neuralgia which have their origin in sudden cold. Phenocoll increases considerably the elimination of nitrogen in health, but does not seem to influence the rhythm of the pulse in any way.

Unusual Effects from the Use of Atropine and Homatropine Eye-Drops in Infants. (*Lancet*, August 6, 1892.)

Dr. George Carpenter states that, although children as a rule bear belladonna well, in his experience the instillation of atropine drops into the eyes of infants, to permit of ophthalmoscopic examination, has not given satisfactory results. The pupil not infrequently remains for a long time without reaction. Quite apart from iritis, iritic adhesions, or what not, dilatation is often very tardy and incomplete. Notwithstanding, physiological symptoms may occur, whether from absorption by the ocular conjunctiva or from passage down the lachrymal duct he is not prepared to state. He mentions several cases in which narcotic symptoms supervened upon the instillation of a small quantity of a one-per-cent. solution. Even then the pupils dilated unsatisfactorily or very slowly. In one case two days elapsed after the application of the drops before dilatation took place. The infants were all under one year of age.

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## NEUROLOGY.

IN CHARGE OF CHARLES W. BURR, M.D.,

Pathologist to the State Asylum for the Insane, Norristown; Visiting Physician to the Home for Incurables; Visiting Physician to St. Joseph's Hospital, Philadelphia, Pa.

Atheto-Choreic Movements. (*New York Med. Jour.*, June 11, 1892, p. 657.) By John Ferguson, M.A., M.D., Toronto.

After referring to the cases of Drs. W. A. Hammond, Spitzka, and Seguin, in all of which lesions were found in the optic thalamus, the author reports the following case. A man about thirty years old, while under treatment for diabetes mellitus, developed continuous movements of the right leg and arm, which continued until death. The movements were slow and continuous rather than short and jerky, resembling athetosis rather than chorea. The movements of the arm, hand, and fingers

were extensive. The arm would be carried with a steady, swinging motion round behind the back, up over the neck and head, and round to the front again. Flexion, extension, abduction, and adduction of the fingers succeeded each other in endless rotation. Neuralgic pain was the only sensory symptom present. The knee-jerk was absent and sexual power lost.

Post mortem the left optic thalamus presented the appearance in its substance of an old but distinct clot. Around this clot there were evidences of degenerative changes, the thalamus being much reduced in consistency. Under the microscope, sections revealed abundant changes, especially in the region of the pulvinar, but no definite histological characters could be made out, due, no doubt, to the softening caused by the irritation of the clot. The commissura mollis was not invaded, and the right thalamus was normal. The internal capsule was slightly involved in the most anterior part. Along the inferior peduncle of the thalamus degeneration could be traced for only an exceedingly short distance. There were no changes in the lenticular or caudate nucleus. Examination of the floor of the fourth ventricle was negative.

The author concludes that the gray matter of the thalamus must be regarded as cortical in function, and therefore an originator of nervous energy, and not merely a transmitter by means of the numerous bundles of fibres connecting it with other portions of the central nervous system. If it originates movements when diseased, they partake of the purposeless character of athetosis or chorea. In the case now recorded there was no motor paralysis; but the athetoid movements were greatly increased by all attempts at definite voluntary actions. This fact alone, taken in conjunction with the other considerations of positive disease in the thalamus, while there was no disease elsewhere, goes to show that the thalamus must have some regulating function to fill toward our voluntary motor impulses. When this regulating function is lost, we are able to originate movements, but no longer able to so harmonize them as to execute regulated and purposeful work by their aid. I would, therefore, regard the thalamus opticus as an originator of movements; and, secondly, as a regulator, in some way, of the movements emanating from other motor areas. The thalamus may have other functions besides the above, but I think the two mentioned can be safely inferred from my case.

Progress in the Care and Colonization of Epileptics. (*Journal of Mental and Nervous Diseases*, August 1, 1892.)

Outline of a Plan for an Epileptic Colony. (*New York Med. Jour.*, July 23, 1892.)

The Treatment of Epilepsy. (*Buffalo Med. and Surg. Jour.*, August, 1892.) By Frederick Peterson, M.D.

The above papers are an earnest plea for the proper treatment of epileptics. That government does not deal fairly with them goes without saying. While the insane and the feeble-minded have institutions especially devoted



to their care, epileptics are allowed to drift into almshouses, and often when, properly speaking, not insane, into asylums. In the latter case injury is done not only to the epileptic but also to the insane. The author would remedy this defect by the establishment of institutions similar to that at Bielefeld in Hanover. Bielefeld is neither a hospital, home, nor asylum, but a colony, where not only is the disease treated but also the person. The author gives the following as the main principles to be observed in the organization of such a colony. There should be two hundred or three hundred acres of farm and woodland, adapted to agricultural and horticultural pursuits, and near a large city for convenience of access and to facilitate expert advice and study. The buildings should be cottages, arranged into separate divisions for male and female patients. The demented, feeble-minded, convalescents, school-children, workers, and private patients of the higher class should all be kept separate. There should be a hospital. Every patient should be put under careful and systematic medical treatment. There should be school-buildings, workshops, farm-buildings, dairy, and granaries. Finally, there should be a laboratory and an expert pathologist. The patients should be taught to work, and, when possible, instructed in trades. Work in the open air is especially suited to this class, and may indeed be regarded as part of their treatment. As to purely medical treatment, the author offers nothing new.

Laryngeal Chorea. (*London Lancet*, March 12, 1892, p. 376.) By Jas. H. Nicoll, M.D.

By the above term the author means an affection of the laryngeal muscles similar to that of the other muscles of the body in the disease commonly described as chorea. He reports three cases. Cough was the main symptom. It was not hoarse or aphonic, as occurs in laryngitis or growth, nor moist, rattling, or wheezing, as in bronchitis. It had not the prolonged paroxysms and inspiratory crow of pertussis, nor the hawking character due to the effort to clear the pharynx of secretion. It consisted of a sudden, single, sharp, dry cough, like that produced by the sharp contact of a probe with the external meatus near the tympanic membrane. It appeared, in short, to be the cough of momentary irritation of some spot capable of reflexly exciting the cough centre. Laryngoscopically the ventricular bands seemed to be of deeper hue than normal. The vocal cords in phonation and deep inspiration acted readily and fairly steadily; but during quiet respiration they exhibited frequent jerky movements toward and away from the middle line. In one case the right cord exhibited a movement by which it became partially "kinked" at the junction of the posterior third with the anterior two-thirds. At this point there was a darkish-red area. In one case general chorea was present from the beginning, and in two appeared later.

## PEDIATRICS.

IN CHARGE OF T. M. ROTCH, M.D.,

Assistant Professor of Diseases of Children, Harvard University; Visiting Physician to the Children's Hospital, Boston.

ASSISTED BY

E. M. BUCKINGHAM, M.D.,

Instructor in Diseases of Children, Harvard University; Visiting Physician to the Children's Hospital, Boston.

Proportion of Inorganic Matter and of Lime in the Bone and Organs in Rachitis. (*Revue Mensuelle des Maladies de l'Enfance*, July, 1892, p. 341; *Zeitsch. f. Biol.*, xxvii. p. 517; *Centralb. f. Klin. Med.*, 1892, No. 13, p. 267.)

Comparison of bone and tissue in sound and rachitic subjects shows that in rachitics water is increased and mineral matter lessened; earthy phosphates, and especially lime, are in much smaller proportion. The greatest diminution in bone ash is in the case of the long bones; it is less in the ribs, and least in the cranium. This diminution occurs as well in the compact as in the spongy parts and the cartilage, and in about the same proportion.

The soft parts of rachitics, like the bones, are richer in water and fat; therefore there is a smaller proportion of ash. If, however, dried muscles freed from fat be compared, there is found a greater proportion of ash in rachitis than in health. In the liver, so treated, the proportions are about normal. Comparing all the tissues in this way, there is found a greater quantity of lime in rachitic than in normal infants.

These facts show, as Kassowitz thinks, that rachitis is not commonly caused by deficiency of lime in the food, but rather that inflammation of the bones causes their loss of lime.

Observations on Albuminuria in Scarlatina. (*Boston Medical and Surgical Journal*, February, 1892, p. 160; *Archives of Pediatrics*, September, 1892, p. 706.) By James W. Dudley, M.D., House Officer, Boston City Hospital.

The object of the paper is to determine the frequency and importance of early albuminuria, and the frequency and character of nephritis, together with other facts. Dr. Dudley has collected statistics of one hundred cases of scarlatina in the hospital, where it is routine to examine all scarlet fever urines every second day. These cases were consecutive except that three were thrown out because no urine could be obtained before death. All the cases of suppression died. Upon the average, cases were admitted during the second or third day of the eruption.

Albumen was found at some time or other in nearly half of the cases, and by far the most common time was early in the disease, while the temperature was high. Albuminuria and high temperature appeared to have a direct relation with each other; the higher the temperature the more likely was this



condition to occur in the early stage. Still, some of the highest temperatures were not accompanied by it, and, on the other hand, albuminuria sometimes occurred without high temperature. In adults the connection between temperature and albumen was closer than in children, albumen being present at the height of fever in every patient of twenty or over whose temperature reached  $103^{\circ}$ . Early albuminuria, however, appears to be more common in adults, whatever the temperature, than in children. It is to be observed that, as all urines were examined, there was no room for fallacy owing to the absence of symptoms in the young. Dr. Dudley is unwilling to state that in the very few cases with low temperature there were no other evidences of renal disease, but certainly he failed to find such. All these cases were in new, well-ventilated wards, which were not full. Furthermore, the most albuminuria was found in the least crowded ward. Therefore, over-crowding and poor ventilation had nothing to do with these cases. There was no especial epidemic in the city at the time, and, therefore, that, as a possible etiological factor, must be ruled out.

The question arises, What are the probabilities of nephritis occurring as a continuance of early albuminuria? In adults, among whom it is most common, nephritis followed it in fourteen per cent. of the cases, in children in twenty per cent. Half of these cases of nephritis were of the mildest type, and none of them were serious. The dangerous variety of nephritis comes later, and does not, so far as these cases show, arise as a continuation of early albuminuria. A temporary nephritis, of which the only sign is a few granular and hyaline casts, is not to be regarded as serious. Such cases may be spoken of as renal catarrh and almost always do well. There may be no renal symptoms with this condition. The post-mortem appearances are slight. Clinically, at any rate, it does not seem possible to draw a definite line between this mild catarrhal condition and a real active nephritis. All varieties and combinations of abnormal urinary elements may be found. The most common variety has a trace of albumen, a few hyaline and granular casts, an occasional leucocyte, and a few renal epithelial cells. Another combination was hyaline and granular casts, a few blood-globules, and a trace of albumen; another, hyaline and epithelial casts, free blood, and a trace of albumen. All degrees were found, from these to typical parynchymatous nephritis. In fact, scarlatinal nephritis has no type of its own. The only practical criterion of nephritis seems to be the occurrence of casts in urine containing albumen. Taking this standard, eighteen per cent. of the hundred cases developed nephritis, in eight of which it was severe, and in ten the variety spoken of as catarrh. Only one case began as a mild catarrh and became severe as desquamation set in; in this case fever was prolonged. The mild variety appeared about equally often in adults and children, less often in young children; this being in marked contrast with the severe form, to which children appear most liable. In estimating the value of this observation, it is pointed out by the writer that the number of cases should be considered.

The fact, often observed, that no dependence can be placed on the severity of the fever as to the probable development of nephritis as distinct from renal catarrh, is borne out by these statistics.

Nephritis occurred most frequently about the end of the third or beginning of the fourth week during desquamation, and never with the beginning of desquamation. The most common time for catarrh is in the first week. The duration of nephritis presented some regularity. In half the cases it lasted from thirty to forty days, in one well-marked case seven days, and in one twenty. Five weeks seems, then, to be about the average duration. The cases of catarrh lasted from four to forty days without any regularity.

In the limited number of cases that presented both nephritis and otitis media, the urine did not clear up as the otitis subsided, contrary to what has been sometimes observed.

Out of six cases with severe angina and false membranes in the throat, five had albumen in the urine, but true nephritis was present only once. Beside these there were cases complicated with pneumonia, with measles, with abscess of the neck, and with inflammation of the joints. These complicated cases, twenty-five per cent. of the whole number, presented a larger proportion of albuminuria and of severe nephritis than did the others. Of the four fatal cases none had albuminuria.

Scarlatinal nephritis seems to the writer to occur very suddenly, without giving any sign of its presence in the appearance of the patient. Edema is apparently not common in the early part of the case. Occasionally a slight rise of temperature accompanies the onset, but close and constant attention to the urine is the only way to be sure that nephritis is not developing.

**Periodic Nocturnal Cough in Infants.** (*Traité des Maladies des Enfants. Journ. de Méd. et de Chir. Prat.*, 1892, lxiii. 5, p. 192; *Archives of Gynecology*, July, 1892, p. 341.) By Baginsky.

Baginsky describes a nocturnal cough of obscure origin in infants. Without apparent cause the patient is awakened by violent cough lasting from a quarter to half an hour. At the end of the paroxysm the child again goes to sleep, and is well in the morning. Ordinarily physical examination shows nothing abnormal. Such attacks have been ascribed to malaria, but this cause can often be excluded. Most probably the condition is due to subacute or chronic rhino-pharyngitis or to a bronchial catarrh with hyperæsthesia of the mucous membrane of the respiratory tract, the accumulation of mucus during sleep causing irritation and thus inducing the paroxysm.

**Observations on Whooping-Cough.** (*Arch. of Pediatrics*, September, 1892, p. 211; *Arch. f. Kinderh.*, 1891, xiv. 19.) By Ullmann.

In a careful study with particular reference to the use of bromoform and sulphurous acid, the author concludes: the improved cases under this treatment showed themselves equally under other and indifferent means, and the



cases which did badly were not prevented by either means. The length of the illness was as little shortened and recurrences as little hindered as ever. Complications of every sort occurred, and the course of the same was not influenced. The mortality was not increased. The sulphurous acid, perhaps through its irritating effect, many times did harm. Bromoform, perhaps as a narcotic, somewhat unfavorably influenced the general condition of the younger children. The purpose of the author's work is stated to be not alone the decision as to the value of any particular therapy, but to point out again that whooping-cough is an entirely typical disease. By the lack of care in observing and recording cases, and by lack of control experiments, and by the use of other and indifferent remedies at the same time, and by neglect of the factor of severity of the case and of the epidemic, is explained how ineffective methods are recommended; and at the same time is explained the general agreement in results.

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## SURGERY.

IN CHARGE OF B. FARQUHAR CURTIS, M.D.,

Surgeon to St. Luke's Hospital and to the New York Cancer Hospital.

Surgery of the Spinal Cord. (Chirurgie de la moelle. *Revue de chirurgie*, August, 1892, p. 685.) By A. Chipault.

Chipault has had some clinical experience with the operations on the spinal cord and has given a careful study to the subject, especially by operations upon the cadaver. He prefers the following method for exposing the cord: median incision, raising the periosteum along with the muscles (he trusts to this for giving a firm, even a bony covering for the canal after healing); pressure for hemorrhage; division of the bony arches by a special rongeur on the same principle as Hoffmann's, removing them completely. He criticises Horsley's advice to open the dura mater in all cases, and would not do so in cases of tubercular inflammation outside of the dura, or any extra-dural tumor, but would invariably open the dura in cases of traumatism. He dwells upon the importance of the pulsation of the cord as a sign of its integrity before the dura is incised, and states that the return of the pulsation is a good proof of its vitality after compression has been relieved. The extra-dural layer of connective tissue is often an important factor in these operations, as it may be very thick and vascular, may be the seat of extravasation of blood, or may be hypertrophied and cicatricial as the result of tubercular inflammation. By incising it in the middle line this hemorrhage is reduced to the minimum. As a rule the dural incision also will be made in the median line. The effusion of cerebro-spinal fluid will soon cease if the patient is kept quietly on his face with the head low. Blood-clots, foreign bodies, and tumors may now be removed, and any other abnormal conditions noted. It has

been suggested to unite the ends of a severed cord, or even to excise a diseased segment and then unite the ends with sutures. Chipault considers the former easy and worth trial, but he has found it an anatomical impossibility to bring the ends together when a gap existed between them, the tissues being so inelastic. The important parts of the operation completed, Chipault strongly advises suture of the dura, for the escape of spinal fluid will be inconvenient and even dangerous, as the loss of large quantities of it has been followed by alarming sinking attacks, and even death in the young. If it is necessary in these operations to reach the anterior surface of the cord, this may be accomplished by placing cushions under the patient above and below the region of the spine which is attacked, and so that the cord will come to lie in the concavity of the spinal curve, and will be relaxed to such an extent that it can be displaced considerably to one side, as well as rotated. This surface of the cord may also be reached by resecting the head of a rib or two and attacking the vertebral arches laterally, as suggested by Treves and Vincent.

**The Extirpation of Cerebral Tumors.** (Ueber die Exstirpation von Hirntumoren mit Demonstration von Pat. und Präparaten. *Centralblatt für Chirurgie*, Beilage zur No. 32, p. 66.) By Von Bramann.

At the last Congress of German Surgeons, Von Bramann reported two cases of successful operations for cerebral tumors which are of great interest.

I. Man, forty-six years of age; symptoms for three months, beginning as spasms in left hand and left side of face, followed by paralysis. The left leg was next attacked, and optic neuritis appeared, but no true choked disc (Stauungspapille). An osteoplastic resection of the skull was made over the centres affected, two flaps seven by six and five by five centimetres in area being turned back, one with the base above, the other with anterior base, as the tumor was found to lie under the anterior edge of the first opening made. A cyst was found which contained fifty grammes of greenish-yellow clear fluid, and its walls were excised as far as possible, as they were considered suspiciously like sarcoma. At first the patient did well, and the paralysis appeared less, but in six weeks the same attacks returned and sarcomatous granulation appeared at the drainage sinus, and a second operation was done, but with only temporary result, although one of the bone flaps was removed. A third operation, removing the other flap (which had also become diseased), and a large mass including the tumor, was performed with such good result that the patient was well three months after, without any epileptic attacks, with normal optic nerves and lessened paralysis.

II. Man, twenty-nine years of age, symptoms for a year, headache, dizziness, sight disturbances of vision, followed by paresis of left side of face and left arm, weakness of left leg, and bilateral choked disc. The ascending branch of the Sylvian fissure appeared to be the seat of the tumor, and



it was exposed by an osteoplastic flap eight by seven centimetres with anterior base, but to expose the upper part of the large tumor it was found necessary to make another flap with its base above, and to remove some bone with chisel and rongeur. The bone was thinned by the pressure of the tumor and also thickened in some parts, and the dura was infiltrated with the disease. The tumor was removed, keeping two centimetres away from its borders, and the mass was found to weigh two hundred and eighty-eight grammes (nine ounces), the largest cerebral tumor on record as extirpated from within the skull. The patient did well, and the wound was almost completely healed at the time of report, five weeks after the operation. The paresis continues, the optic neuritis is in the stage of atrophy, but the facial paralysis has disappeared and the intelligence has greatly improved.

Von Bramann considers that the recovery of these patients after such extensive operations was due to the careful tamponade of the cavities with gauze (iodoform), preventing œdema of the brain, the greatest danger.

**Sarcoma Developed in a Gunshot Fracture.** (Sarkom in einer Schussfraktur. *Centralblatt für Chirurgie*, 1892, Beilage zur No. 32, p. 25.) By Dr. Seydel.

Seydel reports the case of a man who received a comminuted gunshot fracture of the femur in 1870, which healed with a suppurating fistula. In August, 1891, he noticed a thickening of the lips of the fistula, and in October, the tumor having reached the size of a man's head, the extremity was removed. Splinters of bone and the bullet were found in the centre of the tumor. We have, therefore, a sarcoma as the result of long-continued irritation, which more often causes carcinoma. Seydel quotes the case of Krevet, in which a sarcoma developed around a ball which had been healed in the chest fifteen years before.

**Tumors of the Parotid Gland.** (Die Geschwülste der Speicheldrüsen und verwandte Tumoren des Kopfes. *Archiv für klin. Chirurgie*, xliv., Hft. ii. 233.) By Dr. D. Nasse.

Nasse reports several cases of tumors of the parotid gland, with a very careful study of their histology, and compares them with similar tumors of the submaxillary gland, lips, cheeks, etc., with the especial intention of clearing up the true character of the mixed tumors so often found in that organ. The epithelial tumors of the parotid are epithelioma, adenoma, and carcinoma. The adenomata are purely glandular, and, although frequently cystic, never present the hyaline degeneration which is so common in the mixed tumors, and they also differ from the latter in being more closely connected with the substance of the gland. The malignant tumors were not common enough in Nasse's collection to allow him to reach any conclusions in regard to them.

The mixed tumors, having in different parts the structure of fibro-

sarcoma, myxochondroma, endothelioma, angioma, fat tissue, and presenting hyaline degeneration of their elements, he considers as connective-tissue formations, that is, sarcomata, not carcinomata, and holds that the apparently epithelial cells which they contain are really of endothelial origin. He reports very similar tumors found in the submaxillary glands, the lips, under the mucous membrane of the cheek, and in the scalp, but was unable to find the exact structure in which they took their origin in any case. He thinks that from their complete encapsulation when occurring in the salivary glands, and their occasional development in other places, they do not arise from the gland tissues, in spite of the similarity between the sarcomatous cells found in them and the secreting epithelial cells of the glands. He finally emphasizes the frequency with which encapsulated epitheliomata with a benign clinical history are found in the tissues of the head, and the difficulty which often arises in attempting to distinguish between them and the endotheliomata which run a similarly slow and comparatively benign course.

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## GENITO-URINARY SURGERY.

IN CHARGE OF WILLIAM K. OTIS, M.D.,

New York.

An Efficient Method of Controlling Hemorrhage after Suprapubic Prostatectomy. (*N. Y. Medical Record*, September 17, 1892.) By E. L. Keyes, M.D., New York.

As the operation of prostatectomy is almost invariably performed on subjects who are already debilitated and anæmic from constant suffering and want of rest, who in addition to their age not infrequently are afflicted with some kidney lesion, the importance of preventing as far as possible loss of blood, with its attendant shock, is easily recognized.

With this in view Dr. Keyes has devised a method which certainly seems to be more rational and effective than any which have preceded it.

This consists in the use of a plug or tampon of bichloride gauze. A square of four thicknesses of gauze is first cut, the length of each side being about six inches. Upon this are placed eight thicknesses of gauze cut square, each side measuring four inches, and upon this eight other thicknesses of gauze also square, the side measuring three inches. Centrally upon the three-inch pad a small white shirt-button is tied by stout silk ligatures, transfixing the pad and tied upon the six-inch square surface. This central button also has a piece of silk attached to it, running out freely in the direction away from the three-inch surface. This is to facilitate extraction. Each of the corners of the six-inch pad is stoutly tied with a piece of silk, and the silk from each of these four corners is knotted at its end into a double knot, while the silk running out backward from the button is



tied with a single knot, for the purpose of distinguishing which is which when making the extraction; although practically it will be found that they must all be made taut and pulled upon all together in order to effect removal with the greatest care and facility.

In the first of Dr. Keyes's cases he passed a soft bulbous olivary French catheter through the urethra into the bladder and out through the supra-pubic wound, and tied the double silk upon the end of it, and with the silk making traction along the line of the urethra, he drew the tampon powerfully down into the funnel-shaped excavation of the prostate, and tied the double ligature over a piece of soft gauze at the urinary meatus upon the relaxed penis.

In the second instance (because the patient also had deep urethral stricture) a perineal urethrotomy was made, and by direct traction through the perineal incision upon the tampon it was drawn firmly into place, and the strings tied over a gauze perineal pad.

In both instances the subsequent removal of the pad was comparatively easy, and its effect in carrying out the function for which it was designed, manifest and satisfactory.

Dr. A. T. Cabot, of Boston, having used this tampon in one case with admirable success, has devised a modification in the construction of the plug which perhaps might render it more easy of removal. This consists in a long strip of gauze the edges of which can be rolled in and stitched so that there should be no loose, frayed edges, and which could then be doubled as is done in making a conical compress and run on silk to which is attached a button. It could then have another thread attached to the upper end to remove it by. This could be drawn into the neck of the bladder as firmly, he thinks, as any compress; but, on loosening the thread which passes through the perineum and then drawing on the upper thread, it would come out in a long strip, much as does the packing which one applies to a bleeding uterus.

In these cases drainage takes place entirely through the suprapubic opening, which must be kept open in order to remove the tampon.

**Mercurial Injections in the Treatment of Syphilis.** (*Les Injections mercurielles dans le Traitement de la Syphilis. Gazette des Hôpitaux*, No. 79, 1892.) By Dr. Paul Raymond.

While a strong advocate of the hypodermatic method of treating syphilis, M. Raymond by no means considers that the other methods are not at times equally or even more serviceable. He considers, however, that in certain cases where it is particularly desirable that the patients conceal the fact that they are being treated, as in the case of married men, this method possesses advantages over all others.

In regard to the question whether a soluble or an insoluble mercurial salt should be used, he considers it as one which can be decided only by clinical experience. If the case is a very pressing one a soluble salt

would probably be advisable, but as a rule insoluble preparations should be chosen. (The yellow oxide, or the benzoinated oil.) But the susceptibility of the patient should be carefully ascertained, and it is certainly a mistake to inject at the first visit any considerable quantity until the effects of mercury upon the patient have been closely observed. It should be recognized, however, that every once and a while the doses should be greatly diminished, as it is a very easy thing to increase them at any time, and thus the accidents of mercurial poisoning be avoided.

The Occurrence of a Valve at the Neck of the Bladder. (Zur Casuistic der Blasenhalssklappen. *Archiv f. klin. Chirurgie*, Erstes Heft, 1892.) By Dr. Poppert.

The patient was a young man of twenty-four, who had been suffering for some time with diabetes, and was also troubled with dysuria. This finally terminated in complete retention, and although the catheter passed readily to the neck of the bladder it there encountered an obstacle beyond which it refused to pass. The prostate was slightly enlarged, but this enlargement disappeared entirely after aspiration of the bladder. The next day the retention recurred, when a perineal section was performed and a catheter introduced with much difficulty through the perineal opening into the bladder and left in place. The patient died at the end of the third day. The autopsy revealed a transverse valve across the orifice of the bladder composed of a reduplication of the mucous membrane of the posterior urethra, having at its base a number of muscular fibres connected with the internal sphincter of the bladder. This valve measured three-quarters of a centimetre in height and its free border one and a half centimetres in length. It was impossible to introduce a sound into the bladder without engaging in this obstacle.

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## ORTHOPÆDICS.

IN CHARGE OF REGINALD H. SAYRE, M.D.,

Assistant to the Chair of Orthopædic Surgery, Bellevue Hospital Medical College, New York.

The Necessity for Early Correction in Congenital Club-Foot. (*Times and Register*, June 11, 1892.) By H. Augustus Wilson, M.D.

The author lays stress, very properly, on the importance of correcting deformities of the feet as early as possible, before the bones have become ossified in the distorted position, and recognizes the necessity of retaining the foot in correct position while the child grows, so that the misshapen bones by proper attention may be reformed so as to preserve the normal outlines. To use his own words:

“Let us consider the arguments on both sides as to the earliest moment that correction would be advisable, and, with that object in view, let us



take as a basis the period at which the centres of ossification appear in the tarsal bones. That of the astragalus shows itself at the seventh month of foetal life, and it is the astragalus that in the large majority of cases of congenital club-foot is the principal, although not the only, disturbing factor. The os calcis has two centres of ossification, one of which appears at the same time as that of the astragalus—the seventh month; and the second that for the great tuberosity, appears at the tenth year. The centre for the scaphoid appears at the fourth year; for the cuboid, at birth; and for the three cuneiform bones, between the first and third years. If these bones of the tarsus are in a deformed position at birth, what is the condition of the bones themselves at this time? Are they ossified or cartilaginous? All the bones of the tarsus are in a cartilaginous state at birth; the centres of ossification of the astragalus and os calcis only having appeared prior to this time, and that of the cuboid has just appeared. Accepting this, it would seem that the rational course to pursue would be to correct the deformity at the earliest possible moment, so that the process of ossification may go on in the proper manner, with the bones of the foot held in correct position, and it is therefore important to decide when that earliest possible moment is. Many surgeons urge that no case should be operated upon until the child is old enough to walk, at one or one and a half years. If we wait until then, however, we must know what the condition of the bones of the feet will be at that time. With the exception of the cuneiform bones, all have shown centres of ossification before that time, and the ossification has progressed in the deformed position in which they are held by any contracted soft tissues. This dry specimen shows a double congenital equino-varus in a still-born foetus, showing the malposition of all the tarsal bones. If these bones had ossified in the position in which they now are, this process would have gone on while they were in a deformed position, and as a result, at the age of one or one and a half years, if we should divide the tendons, the effect would be to simply rearrange deformed bones, the period having elapsed when it was possible to materially alter their shape. I contend that it is not rational to wait until the doubtful assistance of walking can be secured, because I believe that it is clearly proven that the earliest moment at which you correct the deformed foot, the more satisfactory will be the ultimate result.”

A Transient or Ephemeral Form of Hip-Disease. (*Boston Medical and Surgical Journal*, August 18, 1892.) By Robert W. Lovett, M.D., and John Morse, M.D.

The authors call attention to the fact that certain cases of hip-disease which present the usual signs and symptoms of this malady in its early stages do not run the usual tedious course, but terminate abruptly in the course of a few weeks. The fact of this sudden cessation of symptoms might lead one to think there was a mistake in diagnosis, but certain of the cases show that osteitis of the femur was undoubtedly present, as after a

lapse of two years and a half there was thickening of the trochanter and a shortening of one inch. Out of one hundred and fifty-six new cases of hip-disease coming to the Children's Hospital, Boston, in 1888-89, they found in 1892 that thirteen cases had made a rapid recovery, and remained well. A certain number of these cases were thought to have had acute synovitis, but in a few true osteitis was undoubtedly present.

[These ephemeral cases of hip-disease undoubtedly do occur, and I have seen a number of them, but should not put the proportion nearly so high as it was found to be in these cases which were investigated at the Children's Hospital, Boston, two or three per cent. being nearer the results in my own experience. These cases go to show that the recuperative power of individuals varies greatly, and that with the same amount of original disease one will recover in a couple of months, while another may require the same number of years, and is an additional argument for the necessity of building up the general health to the point of being able to overcome disease when combating chronic bone-diseases.—R. H. S.]

**Overgrowth of the Inner Tuberosity of the Tibia as a Cause for Genu Valgum.** (*Med. Press and Circular*, September 21, 1892.) By John Ewens, L.R.C.P.

Genu valgum may be due to changes in the shape of the lower end of the femur, which is common, or the upper end of the tibia, which is rare, or in both bones, which is moderately frequent. The author thinks some accidental cause which increases the blood-supply to one or the other of these places is the cause for the location of the deformity. Our methods of reducing the deformity should be directed to the place where it exists; and if it is in the tibia, bone operations above the knee are uncalled for. If the operation be below the knee it may suffice to simply make section of the tibia, or it may be necessary to remove one or more wedges of bone; or in certain cases, a wedge of bone having been removed just below the joint, the simple section of the bone lower down may suffice to bring the leg straight.

The author thinks removal of wedges of bone, though more severe, is more scientific than simply making section of the bone, and thinks it less dangerous than multiple section.

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## OBSTETRICS AND GYNÆCOLOGY.

IN CHARGE OF JOHN M. KEATING, M.D., LL.D.,

Colorado Springs, Colorado; Fellow of College of Physicians of Philadelphia; Gynæcologist (Emeritus) to St. Agnes's Hospital, Philadelphia; formerly Visiting Obstetrician to the Philadelphia Hospital (Blockley); Editor "Cyclopædia of the Diseases of Children," etc.

**Peroxide of Hydrogen in Gynæcology.** (*American Gynæcological Journal*, August, 1892.)—Attention is called in the Abstract Department to the value of this remedy in removing pus from purulent ulcers, etc. A



teaspoonful to a pint of water, to which various antiseptics may be added, can be used. [We may state that our own experience with this substance is very much in its favor.—J. M. K.]

**The Corset as a Factor in Pelvic Diseases.** (*American Gynæcological Journal*, August, 1892.) By G. R. West, M.D.—This article deals at length with the injuries from what he calls the habitual use of the corset, exerting its influence on the osseous system first, the thorax second, the abdomen third, and the pelvis fourth. If the author had confined himself to the abuse of the corset his paper would probably do more good. "In all probability the Indian and the Chinese and the uncorseted woman breathe with the abdominal movement of man." But it must be remembered that these various ladies are unaccustomed to the modern skirt, especially that used in England, which is heavy to begin with, and, with its trimming of braid and possibly the fashionable leather binding, is quite a burden to carry. Do away with the corset,—the sensible corset, we mean,—and nine times out of ten this skirt, with various other accessories, will hang from the waist, and surely the pelvic contents will suffer far more than if the corset were used. We think that the corset is a natural accompaniment for the dress of modern civilization, and, until we return to the simplicity of the Greek or the Japanese, or the innocence of Eve or Pocahontas, we will have the corset always with us,—but a sensible corset.

**Exploration of the Abdominal and Pelvic Contents under Anæsthesia.** (*American Gynæcological Journal*, August, 1892.) By Edward J. Ill, M.D.—This paper is a plea for the more extended use of anæsthesia, and is quite convincing in its arguments; but gynæcologists, or general practitioners who do much gynæcology, should always bear in mind the necessity of invariably having a nurse or assistant present under such circumstances.

**Hysterectomy without Pedicle.** (*American Gynæcological Journal*, August, 1892.) By S. C. Gordon, M.D.—The writer strongly advocates total extirpation with abdominal hysterectomy. He feels sure that with an operation which removes not only the tumor but the uterus completely, we have promise of a better treatment of a uterine fibroid than by any method that leaves a portion, which may give rise to septic infection or become the seat of malignant disease. It may be remarked that, where it is deemed necessary to remove the uterus entirely, it is now generally thought easier and advisable to open the vagina with abdominal hysterectomy.

**Vaginal Extirpation of the Pedicle with Abdominal Hysterectomy.** (*Lyon Médicale*, No. 42, October 18, 1891. Quoted from the *Annales de Gynécologie*, August, 1892.) By P. Goullioud.—The author of this article is in favor of total extirpation, following Bordenhauer, A. Martin, and others.

Remarks upon the Etiology of Myomata and the Technique of Myotomy. (*Cent. für Gyn.*) By H. Fehling.—In the course of this article the author gives some statements as regards the frequency of myomata in married and unmarried women, basing his deductions upon seventeen hundred and fifty-four women in attendance at the clinic, of whom eighty-three per cent. were married and seventeen per cent. not married. Of these, one hundred and eighty-nine were cases of myomata; ninety-five and six-tenths per cent. were married, and thirty-four and four-tenths per cent. not married. Taking into consideration the ratio of those in attendance, his deductions were that myomata was more frequent in the non-married than in the married.

Conservative Treatment of Salpingitis. (*American Journal of Obstetrics, etc.*, July, 1892.) By G. F. Mundé, M.D.—This is an admirable and well-timed paper, which applies to cases of catarrhal salpingitis, not of the acute variety, but that which has gone on to a more chronic state. The author emphasizes the fact that a mere slight, more or less acute or sub-acute, inflammatory enlargement of the Fallopian tube, even though it be entirely detectable by the finger, does not warrant the removal of the diseased organ until all palliative means at our disposal have been tried and tried again without avail. The mere presence of catarrhal salpingitis, with or without adhesion, with or without agglutination of the tube, with or without closure of fimbriated extremity, or the mere presence of a certain amount of pain in these regions does not, by itself, warrant us in removing the diseased organs; but he most emphatically states that the presence of pus in the Fallopian tube—*i.e.*, a true pyosalpinx—always calls for the evacuation of the pus, if not for the complete removal of the disease, too.

In the discussion upon this paper, Dr. H. T. Hanks, while commending the treatment suggested by Dr. Mundé, dwelt upon the importance of curing the endometritis if we wish to cure the perimetritis. Dr. George T. Harrison agreed in the main with the methods advocated by Dr. Mundé, but stated that instead of hot poultices in the treatment of acute inflammations in the appendages and in the perimetrium he used ice-bags, and could not speak too highly of the use of cold under these circumstances. He did not apply the ice directly to the abdomen, but interposed a piece of flannel. He did not agree with Bland Sutton or with Mundé in doubting the possibility of draining the Fallopian tubes through the uterine cavity, but stated that his own experience agreed with Polk, Pryor, Doleris, Heitzmann, and others, as to the value of curetting the endometrium and draining with iodoform gauze. Dr. Egbert H. Grandin also believed that such drainage of the Fallopian tube was possible in cases where the tube had not sunk to the floor of the pelvis, but remained practically at its normal level with reference to the uterus. Dr. George M. Ebhols stated the diagnosis of catarrhal salpingitis with enlargement was an easy matter if the examiner was schooled in bimanual palpation. It depended upon the recognition of an endo-



metritis, and, combined with this, of pain on pressure of the tubes between the finger within the rectum or vagina, and the hand outside of the abdomen. A pressure on the tubes direct was exceedingly painful in such cases, whereas that above or below the tube was painless.

## OPHTHALMOLOGY AND OTOTOLOGY.

IN CHARGE OF J. E. HARPER, A.M., M.D.,

Chicago, Illinois.

**Zoster Ophthalmicus.**—Dr. F. Buller reports in the *Montreal Medical Journal*, August, 1892, an unusual case of this disease. The patient, a man of forty-one years, applied for treatment, giving a history of the left eye becoming inflamed and painful two weeks previously. Pain intensified at night. Condition persisted. There were moderate injection, some lachrymation, impairment of vision, and a superficial ulcer of peculiar appearance over the centre of the cornea. The portion of the ulcer covering the lower half of the pupillary area was not surrounded by infiltration, but leading up from this were three ulcerating grooves, each surmounted by a rounded ulcerating infiltration. After being five weeks under treatment a typical herpetic eruption appeared on the left arm, following closely the distribution of the musculo-cutaneous nerve. Two small spots resembling catarrhal herpes also appeared near the outer border of the left eyebrow. Under treatment the eye improved, the rash faded, and in about ten days was represented by the red spots or stains usual in the affliction.

**Ophthalmia Neonatorum.**—Dr. John Dunn (*Virg. Medical Monthly*, August, 1892), writing of the treatment of this affection, advocates the silver and salt treatment, but dwells upon the importance of attention to details. When the discharge is thick, purulent, and profuse, he uses the silver, twenty grains to the ounce; when the discharge becomes muco-purulent, ten grains, and when the discharge ceases and there remains only conjunctival redness and slight swelling, he uses a five-grain solution. The eye should be thoroughly cleansed with absorbent cotton and the silver solution applied, not dropped, great care being taken to prevent it touching the cornea. Afterwards the salt solution is used and all the silver washed away. The home treatment consists in cleansing the eyes with boracic-acid lotion. This is the treatment to be used in cases where the cornea is not affected. Under it the duration of the affection will be from two to three weeks.

**Dislocation of the Crystalline Lens.**—In the *Chicago Medical Recorder*, August, 1892, Dr. Wm. H. Wilder reports a case of this injury, resulting from a blow, examined five years after the accident. Pain, red-

ness of the eyeball, some swelling of the surrounding parts, and dimness of vision followed the blow, but disappeared at the end of a week, when the patient noticed a downward cleft in the margin of the pupil. Severe pain, lasting several hours, came on a year later, and several other similar attacks accompanied by neuralgic pain in the cheek have occurred since. On examination, left eye was more pronounced than right, pupil irregularly enlarged, and rather pear-shaped from atrophy and adhesions of lower part of iris. Iris not tremulous. The lower edge of the lens could be seen, and showed a slight opacity, when the patient looked downward. The lens was tilted on its vertical axis, though the upper part did not ssærdthe iris forward. Field of vision, fundus, and tension normal.  $V = \frac{6}{24}$  cyl. + 1.75 ax.  $180^\circ$   $V = \frac{6}{9}$ . Read J. 1 at 22 and 27 centimetres.

Ophthalmometer showed no corneal astigmatism. The case, the author concludes, demonstrates that if the dislocation is partial, the iris not tremulous, and the lens fixed in its new position, the trouble may stop, as the rent in the suspensory ligament may heal and circumscribed inflammatory action bind down the lens.

**Mechanical Treatment of Trachoma.**—In an article on this subject in the *Medical and Surgical Reporter*, August, 1892, Dr. Edward Jackson mentions the tedious, long-continued, and rarely successful treatment of true granular conjunctivitis by the local application of medicines. He sets over against this the mechanical treatment. Incising of the granules and sago-like masses and the excision of the whole retrotarsal fold abridge the course of the disease, but leave a contracted conjunctival sac; grattage or scraping the entire conjunctival surface or brushing it with a tooth-brush cuts short the disease, but leaves too much contraction behind.

With Dr. Hotz's method of expressing the granules he has not had much success, though Noyes and others have. With Knapp's roller forceps he has cured the mass of cases in which he has used them without contraction or the necessity of a subsequent operation. The operation is done under ether. Extreme care must be exercised, and all the conjunctival surface rolled and stripped two or three times. The blood and exudate are then cleared away, and the after-treatment is directed to the prevention of undue reaction and subsequent relapses. In cases where there is much thickening and induration, a preliminary scarification adds to the success of the treatment. The author has used both the smooth and corrugated roller, and ordinarily prefers the latter. He advocates boldness in operating, as the apparent violence done is necessary to success.

**The Effects of Mydriatics in Infants.**—Dr. George Cooper (*Lancet*, August 6, 1892) formulates the following results of his observations of the use of homatropine and atropine in the eyes of children under one year of age. 1. The pupil not infrequently in infants remains for a long time undilated, sometimes for hours. The reaction is often tardy, and then the



pupil may not dilate to its full extent. This is quite apart from iritis, iritic adhesions, or what not. 2. Physiological symptoms in infants not seldom occur; whether from absorption by the ocular conjunctiva or passage down the lachrymal duct and so on, I am not prepared to state; possibly both causes are in operation.

**Ophthalmia Neonatorum.**—In this affection, Schmidt-Rimpler (*Journal de Médecine de Paris* for April) prefers chlorine water to nitrate of silver as an instillation. He uses this twice a day, and keeps the eyes covered with absorbent cotton moistened with a two per cent. solution of boracic acid. He asserts that when the disease is caused by gonococci it is not always serious, and the disease may be grave where there are no gonococci. He regards the affection as more dangerous and less amenable to treatment when it occurs in the adult.

**Operative Treatment of Glaucoma.**—In the *R. L. Oph. Hosp. Reports*, December, 1891, Dr. Collins reports conclusions arrived at from the study of twenty-three eyeballs operated upon for glaucoma.

The relief afforded by iridectomy is in either of the following three ways.

“1. When the apposition is recent, very slight means may suffice for the escape of the aqueous, a drag on the iris being often enough to loosen the attachment.

“2. In recent or acute cases the iris may tear away from its extreme root, thus leaving a portion of the filtration area free for drainage, even should the remainder of the iris keeps its faulty position.

“3. In other cases a permanent gap is maintained in the walls of the globe by the prolapse of a fold of iris into the wound. Subsequent stretching or atrophy of the iris tissue occurs, or periodic rupture of the same, thus allowing the aqueous to pass through into the subconjunctival tissue and thus become absorbed.”

**Two Deaths after Enucleation in Cases of Panophthalmitis.** (*Le Progrès Médical*, June 18, 1892.)—M. Kalt reported to the French Congress of Ophthalmologists two deaths following enucleation for panophthalmitis. The first was a man aged fifty-nine years, suffering from an infectious ulcer of the right eye, who died four days after the operation. The second case was that of a young boy, aged six years, whose eye was removed on account of a purulent choroiditis, and who died six days after the operation from meningitis. In the first patient there was found, at the level of the frontal convolution on the two sides, a large purulent subarachnoid exudation. It appeared to be about four days old. Examination of the pus gave a pure culture of pneumococci. In the eye was found a purulent choroiditis, with a hyalitis with many micrococci, but no pneumococci. It is a logical conclusion that this patient was infected, the meningitis being caused by the traumatism of the operation.

## DISEASES OF THE LARYNX, NOSE, AND SURROUNDING STRUCTURES.

IN CHARGE OF J. PAYSON CLARK, M.D.,

Physician to the Throat Department of the Boston Dispensary; Assistant Physician for Diseases of the Throat, Massachusetts General Hospital.

[The following brief abstracts of the papers read at the June meeting of the American Laryngological Association are continued from the October number of the MAGAZINE. Owing to lack of space, it was impossible to include abstracts of all the papers read at this meeting in the previous issue, as was originally intended.—Ed.]

**Some Pathological Conditions of the Upper Air-Passages Coincident with Attacks of "La Grippe."**—From a record of a large number of cases Dr. S. H. Chapman selects sixteen as of more than ordinary interest, having previously been under treatment for seven years to six months for other diseases. Eight were cases of spinal diseases, one of diabetes insipidus, four of renal diseases, three of rheumatic gout. The onset of la grippe was quite similar in all these cases, the symptoms being the usual ones. In one rheumatic case there was croupous laryngitis complicated with broncho-pneumonia; in two, aphthæ of mouth and pharynx. In the four cases of renal disease grippe was accompanied by sanguineo-purulent naso-pharyngeal inflammation, combined with acute tonsillitis and sympathetic enlargement of the cervical glands. The swelling of the tonsils became so great as to threaten suffocation, and was relieved by cutting. In some of these cases there was hemorrhage, but not dangerous. In the case of diabetes there was intense congestion of the entire pharynx and œdema of the larynx for eight days. During the severest period of the disease the pulse, previously very rapid, was reduced to 70. In one case of spinal disease a form of paralysis, absent for many years, developed. In several cases of spinal trouble there were reduction in the pulse-rate, extreme malaise, and very sensitive spine. Secondary affections were aphonia and purulent naso-pharyngeal inflammation.

**Pharyngo-Mycosis.**—Dr. F. I. Knight's object in his paper was to draw out a discussion on a subject which has received very little attention from authors in this country. He described the appearance of the affection and its quick recurrence after removal of the follicular contents, and mentioned the discovery by Fraenkel of numerous leptothrix threads in such products, which parasite had been looked upon by some writers as the cause of the condition. A number of other forms of parasitic growths in the throat had been described. Chiari and others believe the parasite an accidental complication. The only satisfactory treatment in Dr. Knight's hands was boring deep into each follicle with the galvano-cautery point. If any of the affected follicles were situated in a part of the tonsil which could be excised, this would shorten treatment. Dr. Delavan had found this treatment unsatisfactory. He had obtained the best results from frequent



washing with borax, also bichloride of mercury solutions, and, above all, correction of disturbed digestion. Other speakers affirmed the importance of attention to the digestion.

**Vomiting Induced by an Elongated Uvula.** (*Medical News*, July 23, 1892.)—Dr. E. F. Parker reports the case of a patient who consulted him for persistent nausea and vomiting. Examination of the throat revealed an extremely long uvula resting on the base of the tongue and exciting retching with every attempt to swallow. Under cocaine, a piece of the uvula, more than an inch in length, was removed, giving complete relief to the symptoms.

**The Value of Sprays in the Treatment of Catarrhal Affections of the Upper Air-Passages.**—Dr. C. C. Rice considered the use of sprays in the form of medicated oily agents, watery solutions, astringents, etc. In spite of their advantages there is danger in the inconsiderate use of petroleum preparations of causing a disagreeable dryness of the nasal passages. Such antiseptics as iodoform and aristol lose much of their antiseptic properties when used with oily agents, nor can their stimulating action be so well relied on when thus used. The pressure and temperature of the spray should be adapted to the particular case. A weak solution of cocaine, say less than one per cent., is perhaps as good an astringent as any. As to pressure, fifteen pounds to the square inch is strong enough for the anterior nasal, twenty-five to thirty for the post-nasal spray. All possible combinations can be made with cocaine, menthol, thymol, etc. By such treatment he believes one can diminish the number of operations for nasal disease.

**Etiology of Primary Laryngeal Croup.** (*Deutsche Med. Wochenschr.*, June 16, 1892.)—Since many able writers still hold to the belief that a simple inflammatory croup having nothing to do with diphtheria, although rare, exists, in spite of the fact that researches made up to the present time show that cases of apparently pure croup are actually to be traced to the diphtheria bacillus, such cases as are here reported by Dr. Eug. Fraenkel are of great importance as substantiating this connection. The autopsy in the first case disclosed no membrane above the larynx, the mucous membrane of the pharynx being completely intact. The membrane began on the laryngeal surface of the epiglottis and extended into the bronchia of the first and second order. There were centres of lobular pneumonia in both lungs, splenic tumor, swollen and hyperæmic kidneys. In the second case the membrane was absolutely limited to the larynx and upper two-thirds of the trachea. In the third case the distribution of the membrane was very much as in the first case. The fourth case was that of a child four years old in which the membrane began below the glottis and extended to bronchia of the third order. In all these cases microscopical examination showed diphtheria bacilli in larger or smaller numbers. Carefully-made cultures and tests all gave positive results. The writer feels justified in

maintaining the conclusions of several earlier authors that idiopathic croup of the larynx is etiologically identical with the croup of the air-passages so frequently accompanying genuine diphtheria,—*i.e.*, it is the effect of the Loeffler bacillus.

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## DERMATOLOGY.

IN CHARGE OF J. J. PRINGLE, M.B. (EDIN.), F.R.C.P. (LOND.),

Physician to the Department for Diseases of the Skin in the Middlesex Hospital, London.

**Thiersch's Skin-Grafting.** (Ueber die Hautverpflanzung nach Thiersch. *Deutsche Zeitschr. f. Chirurgie*, xxxiv. 193.) By Dr. Urban.

Urban reviews the work at Thiersch's clinic in skin-grafting since Plessing's report in 1886. The method remains the same. Stress is laid on the advisability of transplanting at once upon healthy, fresh wounds, not waiting for granulations, and then, by cutting these off, making a new wound for grafting. The grafts are laid so as to overlap the edges of the wound and their own edges, and they are cut as thin as possible. They should never be taken from another person for fear of transmitting disease. The grafts will grow on any tissues except compact bone, cartilage, and tendons. Kraske's idea of applying them to the freshened surfaces of cancerous ulcers is not looked upon with favor, for, although the grafts will adhere, they are soon penetrated and broken down by the granulations from the tumor.

The grafts are largely used in plastic operations to cover the surfaces from which transplanted pedicle-flaps are taken, to cover one side of these flaps when it is necessary to have two surfaces with epidermal covering, and finally to graft on the outer side of the mucous membrane of the nostrils, lips, and eyelids when it is necessary to remove their cuticular surfaces in extirpating small tumors or in correcting ectropium. The skin-grafts have also been successfully employed to cover in the bony surfaces left exposed after operations for necrosis, even down in the bottom of deep clefts, naturally, after several weeks have passed, and the cavity has been made thoroughly aseptic. The grafts grow well on callous bone. One of the most important of the conditions treated by grafting were the leg ulcers, chiefly of varicose origin. Urban claims that it is necessary in these cases to submit the patient to a treatment lasting not merely weeks but months, and considers the failure to do this responsible for the frequent relapses reported by others. He keeps the patient in bed for six or eight weeks with preparatory treatment directed to obtaining a healthy granulating surface, then the operation is performed, and, although the grafts heal firmly within ten days, the patient must be kept in bed for at least five weeks longer, not being allowed to rise even for defecation. A method which makes such demands upon the self-command of the patient and the authority of the surgeon is certainly not very practicable, and must be reserved for the severest cases, those which would otherwise demand amputation. It is un-



necessary, however, to say anything in regard to the general usefulness of this method of skin-grafting, which is one of the most remarkable surgical advances of the time, enabling many operations to be performed and many conditions cured which were formerly beyond the reach of the surgeon.

**The Etiology of Leprosy.** (*Medical Record*, New York, September 10, 1892, p. 293.) By Dr. George L. Fitch.

After an exhaustive paper, the writer makes the following conclusions:

1. We have the clearest and most unmistakable proof that leprosy is a non-communicable disease, as leprosy, under any circumstances.

2. Leprosy invariably follows the introduction of syphilis among virgin races so quickly as to point most strongly to a common origin.

3. It is a well-known fact that syphilis, in an immense majority of cases, cannot be acquired under any circumstances a second time. While the twenty cases in which I inoculated syphilis on lepers are not absolutely conclusive, still it is a point worth consideration.

4. By accepting the view I have put forth, we have an easy, natural solution of leprosy,—a non-communicable disease after it declares itself as leprosy,—spreading as it does spread, and still being in itself non-contagious and non-communicable. In this way, also, we are able to account for those isolated cases of leprosy which now and again appear in communities otherwise free from the disease, and in which the subjects affected with it can never by any possibility have come in contact with it.

The writer further believes that members of the German race are far more subject to leprosy than those of the British or American. To the question, what is leprosy and what causes it? he considers the answer to be: it is a fourth stage of syphilis, which stage occurs epidemically in races virgin to syphilis or sporadically in persons whose systems have reverted to a condition virgin to the disease, and occurring also in those presenting a distinct neurotic taint and whose habits have been such—in regard to food supply and manner of living—as would without the before-stated conditions produce ordinary scrofula.

**The Cure of Lupus by Local Treatment.** (*Therapeutic Gazette*, September, 15, 1892, p. 591.) By Dr. A. J. Harrison.

After observing the disinfecting powers of sulphur and the beneficial effects derived from this drug, more especially from the use of ichthyol, the writer devised a plan which would insure the liberation of sulphur and of sulphurous acid in the nascent—and therefore a highly active—state within the diseased tissues themselves. It seemed to him that, as lupus was very analogous in its character to, if not identical with, tubercular disease, these drugs ought to be powerful remedial agents.

It occurred to him, further, that a good method of producing the interstitial deposition of nascent sulphur and sulphurous acid in the lupoid tissue would be to impregnate the part thoroughly with a solution of hypo-

sulphite of sodium, and afterward apply locally a weak solution of hydrochloric acid. The acid will then cause decomposition of the hyposulphite, liberating nascent sulphur and nascent sulphur dioxide. This is the principle of the new method of treatment, the actual strength of the solution being, of the hyposulphite, forty grains to one ounce, and of the acid, five minims to one ounce. The first solution was applied freely all night on lint covered with gutta-percha tissue, being replaced in the morning by the second lotion. The author believes that the beneficial effect of this treatment is really due to actual destruction of the microbe producing the disease.

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## HYGIENE AND BACTERIOLOGY.

IN CHARGE OF A. C. ABBOTT, M.D.,

First Assistant in the Laboratory of Hygiene, University of Pennsylvania.

**Contribution to the Study of the Bacterium Coli Communis.** (Contribution à l'Etude du Bactérium coli communes. *Sém. Méd.*, 1892, No. 6; abstract from *Hygienische Rundschau*, 1892, No. 13.) By Lesage.

The author is of the opinion that the virulence of the bacterium coli communis depends largely upon the source from which the organism is obtained. When obtained from the normal intestinal tract it is practically non-pathogenic for animals; on the other hand, when from a case of diarrhœa, especially cholera nostras or infantile diarrhœa, it assumes a decided pathogenic character, with a tendency to a general constitutional infection. When from a suppurative process, on the contrary, its pathogenic properties find expression in local suppurations.

**The Self-Purification of Rivers.** (Zur Frage der Selbstreinigung der Flüsse. *Archiv f. Hygiene*, Bd. xiv., Heft 2, S. 190.) By Pfeiffer and Eisenlohr.

Of the lower organisms the beggiatra are most common in waters that are contaminated to any considerable extent by organic matters. The authors report the result of their inspection of the river Isar near to and at a distance from the point at which it receives the sewage from the city of Munich. Pettenkofer discovered near the mouth of the principal sewer emptying into the Isar that the rocks, banks, and roots of trees that were under the edge of the water were covered with a slimy deposit of a gray, gray-red, and red color. The authors have confirmed this observation at other points of the river, and find it to be due to a luxuriant growth of beggiatra roseo-persicina. At all points where pure water flowed into the river the red beggiatra were absent, and their place was taken by green algæ, but just so soon as a point was reached at which the river again received sewage or waters containing large quantities of decomposable organic matter, again the red beggiatra could be found.



They consider the presence of the red beggiatra as a biological indicator as to the kind of pollution present in water.

The authors studied the river Isar from thirty-three kilometres below Munich, and found that at this distance none of the red beggiatra were present, but as they gradually approached the city and reached Garching fourteen and a half kilometres below Munich, the beggiatra again began to make their appearance. They believe this difference to be owing to an alteration in the quality of the water in flowing from Munich towards Garching, that deprives the beggiatra of the organic matter necessary to their existence. [To the abstractor it seems not impossible that this alteration—a diminution in the amount of organic matter—may be due to the life-processes of the beggiatra, and that they in this way play a more important part than is ordinarily supposed in the purification of contaminated streams.]

**The Fecal Theory of Tetanus.** (Teoria fecale del tetano. From the Institute of Experimental Hygiene of the University of Pavia: Abstract from *Die Hygienische Rundschau*, 1892, No. 15.) By G. Sorinani.

The author assumes that under the influence of wind and weather and sunlight the bacillus of tetanus, and its spores that are upon the surface of the earth, gradually lose their virulence. It is well known, he continues, that in the intestinal evacuations of many healthy animals, herbivora as well as carnivora, tetanus organisms are frequently to be demonstrated. He is of the opinion that the virulence of these organisms is perpetuated by their being taken into the intestinal canal of feeding animals, where they find conditions favorable to their anaërobic development and sporulation, and from thence are again deposited upon the soil in increased numbers and a high degree of virulence. Upon being dried these spores are then distributed to distant places through the action of winds. Each passage through the intestinal canal indicates for the tetanus bacillus a new phase of sporulation and multiplication.

Two experiments were made by the author upon dogs to determine how far this hypothesis could be substantiated. In one case a dog was confined by a chain to a localized area. He received his nutrition directly upon the ground on which he defecated. The fæces passed by the animal contained virulent tetanus bacilli continuously. A second dog, the fæces of which contained also tetanus bacilli, was fed, from a certain date, upon carefully-cooked meat that did not come in contact with the soil. Immediately after the meal he was muzzled to prevent him from getting particles of earth into his mouth, and also to prevent his licking his body. Sixteen days after the beginning of the experiment no more tetanus bacilli could be demonstrated in his evacuations.

**Rapid Coagulation of Milk during Storms.** (Ueber die Ursachen des raschen Gerinnens der Milch beim Gemitter. *Malkeri Zeitung*, 1891, No. 27; *Hygienische Rundschau*, 1892, No. 15.) By Liebig.

These experiments were performed for the purpose of determining if the coagulation that is seen to occur in milk during storms is due, as is commonly supposed, to the action of ozone generated in the air at the time. As a result of his work he found that ozone neither in four and a half per cent. nor concentrated at low temperature (20° C.) or high (40° C.) was capable of decomposing milk-sugar with resultant lactic acid. He further shows that ozonized milk becomes sour much more slowly than milk not so treated; that ozone has the property of inhibiting the growth of the bacteria in milk that cause it to become sour. He concludes that the rapid coagulation of milk during storms is owing to an increased development of the bacteria that are in it, under the favorable influence of the high temperature that commonly accompanies these storms.

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## PATHOLOGY.

IN CHARGE OF ALLEN J. SMITH, A.M., M.D.,

Professor of Pathology in the Medical Department of the University of Texas, Galveston, Texas.

A Gas-Producing Bacillus, capable of Rapid Development in the Blood-Vessels after Death. (*Bull. of Johns Hopkins Hospital*, vol. iii., No. 24.)—Under this heading, Welch and Nuttall, of Johns Hopkins University, describe at length a micro-organism which they isolated from the body of a patient dead in the hospital of the above institution, and to which they have applied the name *bacillus aërogenes capsulatus*. The following *résumé* satisfactorily sets forth the main points in the case: "A patient with chronic pulmonary tuberculosis, acute miliary tuberculosis, and a large sacculated aneurism of the ascending arch of the aorta, which had ruptured in two places through the anterior thoracic walls, died suddenly after repeated copious hemorrhages from the aneurism, but not immediately after the loss of blood. The autopsy was made in cool weather *eight hours after death*, while the body was still warm, there being no odor or evidence of ordinary cadaveric decomposition present. The heart and blood-vessels everywhere were found to contain gas-bubbles in large amount; gas was also present in the subcutaneous connective tissue in some places, in the heart-muscle, liver, and other organs. There was a solution of the blood-coloring matter, evidenced by the color of the blood, the diffuse red staining of the inner coat of the vessels and of the tissues in the pelvis of the kidney. The bacterioscopic examination of the blood revealed the presence of non-motile, capsulated bacilli in very large number wherever gas was found, and no other micro-organism could be detected. This bacillus was isolated in pure culture and found to be an obligate anaërobe. Its morphological and biological properties were studied and have been described [in the body of the article.—REV.]. An exact reproduction in every particular of the condition in the body relating to the presence of gas and



changes caused by the bacillus was obtained by the injection of pure cultures of the bacillus into the circulation of rabbits shortly before killing the animals. No accurate determination of the gases produced by the growth of the bacillus was made save to establish by ignition the presence of hydrogen both in the original case and in the experimental animals." This very excellent study indicates the explanation of a not inconsiderable number of instances, hitherto inexplicable, of pneumathæmia.

It seems quite credible that there have been cases where death has resulted in consequence of the introduction of air into the circulation through surgical operations, phlebotomy, through the uterine veins of the puerperal uterus, through the veins of the stomach or intestines in ulcerous lesions; and Dr. A. H. Smith's view of the pathogeny of caisson disease cannot be certainly denied. Nevertheless, there remains a large proportion of cases of pneumathæmia for which no satisfactory explanation has as yet been offered; and in this group there will probably be found a number in which the gas in the blood is the product of bacterial activity. The experiments of the authors would indicate that the bacilli in question do not actively develop in the blood of the living patient, but this seems probably open to revision. Many cases of suddenly developing unconsciousness followed by death might be definitely explained, and at present explained in no other manner, by the supposition of gaseous embolism of the brain, certain conditions of the general system permitting at least a limited activity on the part of the bacteria before the death of the patient. Among such conditions probably may be suggested the pregnant state or at least some of the accidents of the pregnant condition, and intoxication or chronic alcoholism.

[In this connection it is not inappropriate to refer to a case, as yet unpublished, which occurred to the abstractor during the past year in John Sealy Hospital of the University of Texas, at Galveston. The patient, a man of middle age, was picked up on the streets of the city by the police patrol, and brought into the hospital in an unconscious condition. He was unknown, and the only fact of his previous history was that the man had been drinking heavily for several days prior to his entrance into the hospital. Death occurred within an hour after admission, before any of the visiting staff had seen him. The resident pupil stated, however, that for a brief period consciousness had been apparently partially restored; the patient having opened his eyes and gazed about him, and had uttered some unintelligible sounds. There seemed to be a loss of power on the left side, the patient moving the right side slightly during this period. The autopsy was held within three hours after death, the weather being rather cool but damp. Beyond slight evidences of gastric irritation and pulmonary œdema there were no gross lesions whatever, save a condition of pneumathæmia. This was most pronounced in the vessels, arteries, and veins of the brain, but was present in the arteries and veins of the body and extremities as well, although proportionately in less degree.

In the instance above noted at Johns Hopkins Hospital, the bacteria probably gained entrance through the rupture-openings of the aneurism ; here no wound of any form existed. The gas in this instance burned, and was collected for examination, but unfortunately was lost at the time of analysis. There were no gross changes of the blood or organs, and no bacterioscopic investigation was carried out at the time.]

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## CLIMATOLOGY.

IN CHARGE OF GUY HINSDALE, M.D.,

Lecturer on Climatology in the University of Pennsylvania, Philadelphia.

**Influence of the Climate of Canada on the Course of Surgical Affections.** (Address in Surgery, British Medical Association, 1892. *Lancet*, July 30, *Medical News*, August 6, 1892.) By William H. Hingston, M.D.

Dr. William H. Hingston ascribes the relatively greater freedom from death in Canada after surgical operations to climatic influences. The inflammations which sometimes follow surgical procedures are accentuated, and are marked by much elevation of temperature ; but the character of those inflammatory processes is of a simpler, plainer, more sthenic type, and not of that irritable form which so often perplexes hospital surgeons in the larger centres of Europe. Canadians are subject to few ailments, and thorough acclimatization is found to confer additional immunities, since those families which count the greatest number of generations born in Canada are the healthier. Exception, however, is made in the case of aborigines who have been allied to the whites. There are no surgical diseases in Canada which have not their counterpart in every portion of Europe, except frost-bites and *mal de raquette*, an affection occurring in those who suddenly and without preparation are called upon to make long and hurried journeys on snow-shoes. The winter is the season of health ; spring and autumn next, while the largest mortality occurs in July and August.

Chronic rheumatic arthritis is seldom met with ; rickets is scarce ; strumous ophthalmias are not frequent ; and in carcinoma, especially of the breast, the glandular system is not generally primarily affected, affording thereby a fairer chance of freedom from early recurrence of the disease.

Dr. Hingston also gives an interesting account of primitive methods of surgical practice as observed among the Indians of Canada.

**The Highlands of Jamaica.** (*North American Review*, March, 1892.) —Lady Blake declares that the “climate of these uplands is perfect, resembling the most lovely English summer weather, with a fresh exhilarating feeling in the air that recalls Switzerland and the Alps. . . . All through the day from about 9 A.M. to 6 P.M. a strong sea-breeze, called by the early



Spanish settlers 'the doctor,' blows almost continuously, and at night a deliciously cool land-breeze sets in, sweeping gently down from the Blue Mountains. . . so as to render a blanket often a desirable adjunct to one's covering at night, even in the middle of summer." Lady Blake's notes on natural history are interesting and show careful and intelligent observation.

**Prevention of Phthisis.** (*North American Review*, March, 1892.)—Dr. Walter F. Chappell calls the earnest attention of the public, through a popular channel, to the urgent need for greater supervision of hotel rooms and other accommodations for phthisical invalids at health resorts, and he urges physicians to instruct their patients as to proper means for preventing infection of others and the reinfection of themselves.

**Relations of Soil to Climate.** (*Bulletin No. 3, United States Weather Bureau*, 1892.)—Professor E. W. Hilgard has published a condensed and orderly report of his investigations of this subject. In dealing with the formation of soils he shows the effect of mechanical agencies, changes of temperature, freezing water, moving or flowing ice and water, chemical agencies, etc. The influences of temperature and rainfall in relation to the formation of the various soils are clearly stated. A comparison is made of soils from the arid and humid regions of the United States with especial reference to the alkali lands of the arid regions and their reclamation.

The investigation of this subject is of great national importance and is being vigorously carried out by the Weather Bureau.

**St. Augustine, Florida, and Typhoid Fever.** (*New York Medical Journal*, September 3, 1892.)—Dr. John S. Billings, surgeon, U.S.A., has made a thorough investigation of the twenty-five cases of typhoid fever occurring among the visitors at St. Augustine in the winter of 1891 and 1892. Dr. Billings regards it as extremely improbable that the prevalence of the fever could have been due to anything in the construction of the hotels, in the water-supply, or in the ice, milk, or food. He states his opinion positively that the hotels of St. Augustine will be as safe for next winter's visitors as they ever were before. Northern invalids need not hesitate about making their plans for a visit to St. Augustine, "with perfect confidence that, while absolute security can be had nowhere, so long as they are there they will probably be less liable to be exposed to the contagion of typhoid fever than they will be if they remain at home."

This will be welcome news to the three great hotels of St. Augustine, whose guests numbered about sixteen thousand during the past season.

**Phthisis as Affected by Altitude.** (*American Journal of the Medical Sciences*, July, 1892.)—Dr. Charles F. Gardiner gives the history of ten cases of primary phthisis developing in residents of Colorado Springs,—

elevation six thousand feet. Such cases were hard to find, notwithstanding the fact that this resort contains one case of imported phthisis to every six healthy people, and the facilities for the dissemination of tubercle bacilli are abundant. None of Dr. Gardiner's cases, with one exception, were exposed to infection excepting in a general way. As far as was ascertained, they never lived with any one with phthisis; not one had an occupation that brought him in contact with the sick,—facts in striking contrast to the history of most of the healthy people of this community. The conclusion drawn is that the climate of Colorado decidedly modifies contagion, primary non-imported phthisis being very rare.

**The Rocky Mountain Region for Consumptives.** (*New York Medical Record*, August 6, 1892.)—Dr. E. M. Littlejohn gives valuable details regarding health resorts in this region. Having for three years been a consumptive, his notes are practical and the characteristics of various places in New Mexico and Colorado are well defined.

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## REVIEW OF ITALIAN, SPANISH, AND PORTUGUESE MEDICINE.

IN CHARGE OF A. M. FERNANDEZ DE YBARRA, M.D.,

Corresponding Member of the Medico-Chirurgical Academy of Madrid, Spain, the Argentine Medical Circle of Buenos Ayres, South America, and the Society for Clinical Studies, of Havana, Cuba.

**Traumatic Neuritis cured by Elongation of Nerves.** (*La Rassegna di scienze mediche*, February, 1892.)—According to the account given by Dr. Simonini, the patient had a fit and lost consciousness during two hours; some time after he had another fit that produced a fracture of the ribs, and then appeared a complete paralysis of the left leg, accompanied by pain in all that limb (May 9, 1881); one month later, trembling on that side increased in severity as the time advanced. Six years thereafter the presence of gangrene made it imperative to amputate the leg, in consequence of which a painful stump caused a great deal of inconvenience to the patient, especially during atmospheric hygrometric changes. The centrifugal and centripetal elongation of the sciatic and crural nerves was performed in a single session. The sciatic had an abnormal pearl color. The result obtained was excellent.

**Ligature of the Subclavian Artery.** (*Il Raccoglitore medico*, March 20, 1892.)—The patient was a man twenty-four years of age, suffering from a pistol-shot wound of the left axilla. One of the apertures was situated under the coracoid process of the scapula, and the other on a level with the latissimus dorsi muscle; there was little hemorrhage, controlled by compression. About two weeks after he had a sudden, sharp pain at the bend of the arm, which felt very heavy. A tumor was formed



in the axilla, and slowly increased in volume until it reached the size of an orange. There was no arterial murmur, but an obscure tremor was perceptible, isochronous with the beating of the pulse; no change of temperature or sensibility between one side of the body and the other. Dr. R. Piccinini tried compression of the subclavian artery, but the patient not being able to endure it, a ligature was applied on the outer side of the scaleni muscles. Three hours after the operation a reduction of two-tenths of a degree, Centigrade, was noticed in the temperature of the operated side. Three days later, there was a slight oscillatory movement in the radial artery. Thirteen days thereafter the ligature came off, and the patient, completely cured, resumed his trade.

**A New Treatment of Yellow Fever.** (*O Brazil-Medico*, Rio de Janeiro, May 8, 1892).—Dr. F. M. de Araujo Góes made a verbal communication to the third Brazilian Medical Congress on a new and successful treatment of yellow fever recently put in practice by him. After criticising the discovery of the so-called *peronospora lutea* of Carmona, and that of his own countryman Dr. Domingos Freire, the *cryptococcus xantogenicus*, he referred in commendatory terms to the visit of Dr. George M. Sternberg to Rio Janeiro and his researches on the subject. Based on the microbial origin of yellow fever, and on the idea that the intestinal track is, as in cholera, the seat of the development and propagation of the pathogenic micro-organism, he tried carbolic acid, thymic acid, nitrate of silver, oxide of copper, iodine, iodoform, glycochlorate of sodium (which enjoys a high reputation in Rio Janeiro against this disease), and also the bichloride of mercury treatment recommended by Dr. Sternberg; but each and every one of these substances proved a failure. Then he thought of the quick elimination of the poison from the system, and instituted a treatment of continuous and rapid discharge of secretions through the intestines, the kidneys, and the skin, and says that if it is faithfully carried out during three or four days, the noxious evolution of the toxins will be thus effectually counteracted. His manner of procedure is to give a purging dose of calomel, followed by castor oil, keeping up the intestinal discharge two or three days continuously; to promote perspiration he administers jaborandi with aconite, and places hot water bottles in the bed; to increase the urinary secretion he gives large quantities of cracked ice, and orders cold water clysters, which, he claims, increase the amount of urine through the greater blood-pressure thus exerted in the capillary origin of the vena porta by reflex action.

# FORENSIC MEDICINE.

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IN CHARGE OF LORENZO D. BULETTE,  
Of the Philadelphia Bar.

## *LEGAL DUTY OF PHYSICIANS TO AID IN PREVENTING THE SPREAD OF CONTAGIOUS DISEASES.*

THE medical practitioner owes certain duties to the public in addition to those that he owes to his patient. Among the public duties which the individual physician is called upon to perform is that of assisting to prevent the spread of contagious diseases. This duty, imposed upon the physician because of his peculiar professional position and means of knowledge, is recognized and enforced by the common law independently of statute, although special statutes, or health laws, are now enacted in nearly every case without exception in order to afford more ample protection to the public health. It is with the legal consequences of the practitioner's neglect or failure to observe the requirements of these laws that the present paper proposes to deal.

At common law it is an indictable offence for a physician, or any one else, unlawfully and injuriously to carry along or to expose in a public highway on which persons are passing, and near to the habitations of others, any person infected with the small-pox or any other contagious disorder; and it is for the accused to show that the object of the carrying or of the exposure was lawful.<sup>1</sup>

It is the duty of physicians who are attending patients infected with contagious diseases, when called to attend other patients not so afflicted, to use all such precautionary means as experience has proved to be necessary to prevent the communication of contagion to their patients. A physician who fails to take such precautionary measures, and continues to visit his patients without informing them of the fact, and thus communicates an infectious disease to one of them, is guilty of a breach of duty and of his implied undertaking to his patient, which, whether it be regarded in the light of carelessness, or negligence, or fraud, would render him liable for the consequent damage, including the suffering and danger and loss of time as well as the expense necessarily occasioned by the second disease, thus produced by his own wrongful act.<sup>2</sup>

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<sup>1</sup> *Rex vs. Burnett*, 4 M. & S. 272, 273.

<sup>2</sup> *Piper vs. Menifee*, 12 B. Mon. 468.



Physicians should observe strictly the requirements of the health laws directing notice of infectious or contagious diseases occurring in their practice to be given to the health or other designated officer, if they would escape the penalties imposed for negligence or failure in this respect. In an action against a physician to recover a penalty under a statute which required the physician immediately to give to a health officer a written notice of the names and residences of the persons sick with the disease, and the evidence showed that, a week or ten days after defendant had pronounced the children sick with diphtheria, he stated to a health-officer that they had diphtheria at certain places, naming them, it was not error for the court to charge that it was a question for the jury whether defendant failed to report the cases in a reasonable time after he discovered the existence of the disease; and that in cases like diphtheria, where the disease is virulent and rapid in its action, eight days is not a reasonable time. Indeed, it was even said by the Supreme Court, in affirming, on appeal, a judgment against the defendant physician in the lower court, that that court would have been justified in saying that no notice at all was given as required by the statute.<sup>1</sup>

On the other hand, the question is asked as to the legal liability incurred by the practitioner who, through carelessness or mistake in diagnosing the disease, reports as contagious a case which afterwards turns out not to be so. The nature of the physician's liability under such circumstances is shown in *Brown vs. Purdy et al.*,<sup>2</sup> which was an action for damages arising out of the alleged responsibility of the defendants, who were the physicians of the plaintiff, to the plaintiff as their patient, for her removal by the public authorities to the small-pox hospital. The patient obtained a verdict in the lower court; but on appeal to the Superior Court the judgment of that court was reversed and the complaint dismissed, because the evidence produced at the trial did not disclose a cause of action. It appeared that the plaintiff was taken involuntarily from her home to the small-pox hospital. This was done by the sanitary inspector in conformity to the health law. The validity and regularity of his proceedings were not questioned, except in one respect, namely, that when the inspector examined the plaintiff to ascertain if she had small-pox, her appearance and symptoms did not justify him in deciding that she had.

"If there was any case for his judgment," says Chief Justice Sedgwick, of the Superior Court, "or any fact of appearance or symptom as to which a question of small-pox or not could arise, his determination as to the legality or propriety of removal was final.

"There was a case for his judgment in the eruption upon the skin of the plaintiff, and in the history given by the plaintiff herself. It is clear to me that the condition of the plaintiff, and particularly the eruption as shown by herself, after the exact appearance of the eruption had been as-

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<sup>1</sup> *People vs. Brady*, 51 N. W. Rep. 537.

<sup>2</sup> 54 N. Y. Super. Ct.

certained, made the question, and would necessarily make it to any physician, as to whether it was small-pox or not. The law imposed upon the inspector the duty of adjudging as to this question of fact, and his decision of it was final, and no action, even irrespective of the statute giving inspectors immunity from actions, could be maintained against him.

"This action is in reality placed by the respondent's counsel upon the proposition that the defendants are liable for the inconvenience and pecuniary loss the plaintiff suffered from the conduct of the inspector, which we have considered not to be actionable."

As matter of proof in this case, the defendants were not present when the removal was made. They had no part nor lot in the execution of the report made by the inspector. Immediately before it was made, and while the inspector was examining the case, one of the defendants was with him at the bedside and said to him, "Did you notice her breath? That was what convinced me more than anything else." And one of the defendants had reported the case to the Board of Health as one of small-pox, and this was the occasion of the inspector's examining the case. "I cannot see," says the Chief Justice, "that this was a wrong to the plaintiff. It was an address to the judgment of a public officer bound to exercise that judgment. It was in the direction of enlightening that judgment. It was not an attempt to prevent the judgment. It was not an appeal to the officer not to act upon his own observations and inferences. It is admitted that the defendants acted in good faith and without malice. It is not at all a case of conspiring with a public officer to use his power irrespective of whether there is the legal occasion for such use.

"It is to be observed that it cannot be maintained that the action of the officer was caused by anything said or done by the defendants. The cause of that action arose in the will and judgment of the officer. Between the statements of the defendants and the forming of the officer's judgment there was not the relation of cause and effect.

"Nor, as I view the case, can it be maintained that the defendants' omission—if there were such an omission—to use ordinary skill as physicians in coming to their opinions was actionable under the facts in this case. There was no improper or hurtful treatment or medication in pursuance of the opinions. These opinions led them to make an honest report to the health board. The statutes had made it their duty to report cases of contagious diseases. The performance of this duty was not part of the functions of a physician in relation to a patient, but rather to the public. My opinion is that, in order to give the public the protection due to it according to the intention of the statute, any physician that forms, in fact, an opinion that a patient has a contagious disease is bound to report the case, whether he has or has not used ordinary professional skill and knowledge. A physician of skill in everything but cases of small-pox, which happily are not numerous, may unexpectedly to himself be called to a case which presents to him the appearance of small-pox. It may be said that he can



call in counsel. It cannot, however, be said that private counsel should be called in rather than such as the law has appointed. Certainly, if he really thinks the case to be one of small-pox, it is his duty to communicate his opinion to the public authorities, who furnish skilled physicians peculiarly competent to pass upon the case. They are the experts that the law points out for the physician. The attendance of these experts upon a patient can cause no injury, and thereafter the responsibility rests solely upon the public officer.

“For these reasons I am of opinion that the plaintiff had no cause of action, and that the complaint should have been dismissed.”

In another case, it was held that a physician was not liable in damages to a landlord for causing paper to be removed from the wall of a room in a house belonging to the latter. The room had been occupied by a small-pox patient, in consequence of which the paper had become soiled with sputum, and the removal of the paper was, under these circumstances, necessary, in the physician's judgment, in order properly to disinfect the room.

The variety of examples thus adduced serves to show not only that the law is tolerant of the shortcomings and errors of judgment in a physician who in good faith strives to obey its mandates, but also that it clothes him with unusual and extensive powers to be used for the general welfare. Indeed, the safety of the people is the supreme law in such cases. When small-pox or any other contagious disease exists in any town or city, the law demands the utmost vigilance to prevent its spread. To accomplish this object, persons may be seized and restrained of their liberty or ordered to leave the State; private houses may be converted into hospitals and made subject to hospital regulations; buildings may be broken open and infected articles seized and destroyed, and many other things done which, under ordinary circumstances, would be considered gross outrages upon the rights of persons and property. This is permitted on the same principle that houses may be torn down to stop a conflagration.

Where the public health and human life are concerned, the law requires the exercise of the highest degree of care. It will not permit experiments to see if a less degree of care will not answer. In all cases of doubt the safest course should be pursued, remembering that it is better to do too much than to run the risk of doing too little.

## BOOK REVIEWS.

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INTERNATIONAL CLINICS: A QUARTERLY OF CLINICAL LECTURES ON MEDICINE, NEUROLOGY, PEDIATRICS, SURGERY, GENITO-URINARY SURGERY, GYNÆCOLOGY, OPHTHALMOLOGY, LARYNGOLOGY, OTOTOLOGY, AND DERMATOLOGY. Edited by J. M. Keating, M.D., LL.D., Judson Daland, M.D., J. M. Bruce, M.D., F.R.C.P., London, and D. W. Finlay, M.D., F.R.C.P., Aberdeen. Volume II., Second Series, 1892. Philadelphia: J. B. Lippincott Company.

The regular quarterly appearance of the Clinics quickly grows on one to be regarded as a quarterly treat; and it can be readily recognized how to the editors and publishers each succeeding volume must bring a feeling of satisfaction and triumph. It has probably been said a number of times before, but is not the less true for the repetition, that it is a wonder this idea of the Lippincott Company has not been thought of and put into practice long ago; in your critic's personal experience not a single physician has looked over a copy of the work without expressing the liveliest interest and admiration. The style of presentation appeals strongly to the writer or lecturer who feels an interest in his records, and is bound to attract not only the better lectures upon the ordinary maladies but also those upon the rarer affections. In the course of time complete sets of these admirable volumes must occupy the highest position as a repository for the history of the advances in clinical medicine and as a thesaurus of clinical facts. It is safe to predict that all future text-books upon practical medicine must copiously refer to the expositions of clinical science in these pages.

The contributors to the present volume number forty-one, among whom might be named some of the most noted clinicians of the United States and Great Britain. The volume opens with an excellent portrait of the late Dr. D. Hayes Agnew as a frontispiece, together with a number of pages of a biographical sketch from the pen of his former colleague, Dr. John Ashhurst, Jr. This feature of recording the services of the great medical teachers, practitioners, and investigators is one which might with great propriety be extended so as to include not only those of the English-speaking nations of the present day, but the departed great of whatever nationality and of whatever age. The history of medicine is a subject too little brought to the attention of the profession, at least in America, where there is probably not a single lectureship upon the subject in the hundreds of existing medical schools. There are but few physicians among every hundred in the United States who know why Hunter and Jenner are names to be revered. It would be a department likely to become famous were the Clinics to contain in each number the stories of two or three such names, whether they belong to England, America, Germany, or France, whether they have passed away within the memory of the most recent graduate or in other centuries.

The section on medicine is introduced by two lectures upon myxœdema, the first by Professor Finlay, one of the editors of the Clinics, the other by Professor Oliver, of the University of Durham. Both are illustrated by portraits of typical cases of the affection. The former is notable because of the studies upon the action of jaborandi in this disease; half-drachm doses of the tincture of jaborandi caused an increase in



the urea excretion, which is habitually diminished in myxœdema, and improvement in the general condition ensued within a short time after the commencement of the remedy. Dr. Oliver's lecture is rendered of more than usual interest by the fact that it records the autopsy of a myxœdematous patient, with the results of the chemical examination by Professor Halliburton upon the proportionate amount of mucin in the tissues. In this instance the amount of mucin in the different tissues of the body was found decidedly increased, that in the heart being, for example, 5.22 per cent. of the weight of that organ, whereas normally the percentage proportion is but about one-tenth of this. Following the suggestion of Murray<sup>1</sup> as to the probable dependence of this condition upon an altered function of the thyroid body, he injected in one instance into the tissues of a myxœdematous patient juice made freshly from the thyroid gland of a sheep. It is of interest to note, too, that the results of this experiment were decided and favorable, being followed by a diminution in the depressive phenomena of the case and of the sluggishness of movement, by a change for the better in the appearance and subjective symptoms in the skin, and by a marked increase in the patient's interest in her own life and in that of others about her. The third lecture is an exceedingly clear and satisfactory contribution upon the pathogenesis, significance, and modes of dealing with dropsy, from Dr. Pye-Smith, of Guy's Hospital in London; and in excellence sequence follow the lectures of Professor Anders, of Philadelphia, upon cardiac dilatation, and of Professor Atkinson, of Baltimore, upon arterial sclerosis. Clearly, however, the palm is borne among the lectures upon pure medicine by that of Professor Frederick P. Henry, of Philadelphia, upon the diagnosis of cancer of the stomach; particularly fine is that part of his contribution devoted to the recognition of latent forms of the disease and their differentiation from simulating conditions, as from progressive anæmia. The experience of Dr. Henry as a hæmatologist makes the following statement one of very positive value in the decision of such cases: "In carcinoma of the stomach the reduction of the red corpuscles does not keep pace with the cachexia; in pernicious anæmia the cachexia does not keep pace with the red corpuscles." Dr. Henry looks upon the absence of free hydrochloric acid from the gastric juice as of diagnostic value in these cases only in connection with other signs; in itself it is only suggestive, with others it is corroborative. He concludes his lecture by this quotation from himself upon a previous occasion: "Leaving out of view the stomach symptoms proper, which are often misleading, it is believed that a chemical and digestive test of the secretions of the organ, a proper examination of the blood, a careful search for enlarged glands and cancerous cutaneous nodules, and finally a quantitative estimation of the amount of urea in the urine, will furnish facts sufficient for a positive expression of opinion in every case of real or supposed gastric cancer."

This lecture is supplemented by one upon cancer of the stomach and cæcum by Professor Alfred H. Carter, of Birmingham, in which the case furnishing the text for the remarks of the lecturer exhibited the rather rare occurrence of cancer in two points in which simultaneous presence of cancer, whether from metastasis or from primary multiplicity, is very uncommon. Whether these occurred simultaneously, or whether one was the result of metastasis from the other, is a fine point for discussion, and is well inquired into in the article, the lecturer inclining to believe that the cancer of the stomach was the primary growth, with secondary formation in the ileo-cæcal region from transference directly along the intestinal tube.

In the section on nervous diseases, where it is the rule to find some of the best contributions to the Clinics, there are several noteworthy articles, of which *facile princeps* is the introductory one, by Professor M. Allen Starr, of New York. The

<sup>1</sup> The author does not allude to the work of Kocher upon the relation between myxœdema and extirpation of the thyroid gland.

principal case upon which his remarks are based was one of epilepsy in a young girl, who had had several convulsions in infancy but grew up a strong, healthy child until about her tenth year, when the epileptic seizures made their appearance and gradually became more pronounced and more frequent. An examination of the visual function showed slight external strabismus, mixed astigmatism and myopia, and, what is of especial interest and diagnostic value, a left bilateral homonymous hemianopsia. In the discussion of this prominent symptom, in developing its significance as a diagnostic sign, and its relations to other existing symptoms, Dr. Starr shows an excellence as a practical teacher which is entirely admirable. Aside from the value of the records of this case of defective development of the right occipital lobe, the logical sequences of the lecture make it one of the very best in the entire volume. Coming to the lecture of Professor Dercum, of Philadelphia, one must pause to admire the faithfulness of the several illustrations to their purpose, although perhaps one should rather admire the skill shown in the selection of the subjects portrayed and of the attitudes so strongly suggestive; that, for example, in the picture illustrating the case of cerebellar titubation one may almost see the movements of the patient in the position assumed. The Philadelphia Hospital, through the various members of its staff, especially of the nervous department, has contributed to the different volumes of the Clinics some of the finest illustrations of the changes due to disease which have appeared in any contemporaneous medical literature; the article immediately following Dr. Dercum's, that of Dr. J. Hendrie Lloyd, upon sporadic cretinism, is a further argument of the truth of this assertion, the subject of the beautiful illustration of this affection being long familiar to the frequenters of the nervous wards of Blockley as "Bart." Several valuable cases of cerebral tumor furnish the groundwork for the lecture presented by Dr. G. A. Gibson, of Edinburgh, the first a case of sarcomatous growth involving the middle third of the right motor area. This tumor was removed by Professor Annandale with entire success, the motor symptoms being almost absolutely stopped soon after the recovery of the patient from the operation. The second case was one of crossed paralysis, the arm and the leg of the left side being palsied and the right side of the face and the right half of the tongue, hemiatrophy of the same half of the tongue accompanying the palsy. *Post mortem* gliomatous masses were found in both hemispheres in the motor areas, and the left side of the medulla was atrophied. The lecturer says, "The atrophic condition of the left half of the medulla oblongata was clearly the cause of the right facial paralysis and hemiatrophy of the tongue, while the changes in the upper part of the right corona radiata (gliomatosis) accounted for the paralysis and contraction of the left extremities. It is interesting to note that the tumor in the cortical part of the left hemisphere had produced few clinical effects." This position may be true, but it certainly is not necessarily true from the data Dr. Gibson has furnished. There is no distinct reason mentioned why the cortical tumor in the left hemisphere should not have been the cause at least of the facial paralysis; moreover, there is no reference made as to the condition of the motor tracts in the region of the pons, where lesions of crossed paralysis are generally looked for, although in this case the double hemispherical lesion could easily replace the necessity for a lesion of the pons.

The surgical section is opened by a lecture by Professor John Ashhurst, Jr., of Philadelphia, upon hip-joint disease, clear in its descriptions and characteristic of the conservative individualism of its author. The excellent results of some of the special appliances used in the treatment of this condition, as for example the movable splints of Professor L. A. Sayre, of New York, have rapidly attracted the profession to their employment. Dr. Ashhurst, however, advises his class to use extension in bed by means of the weight and pulley, with fixation by a long moulded pasteboard splint, and says, "This answers as well as the more elaborate splints made for the purpose which are used with success by different surgeons." J. Bland Sutton,



whose unique work in pathology has commended itself to the profession the world over, contributes a lecture upon axial rotation of abdominal tumors, illustrating the text by a number of examples of the process, from a few twists of the pedicle to actual separation of the mass from its stump, leaving it free in the abdominal cavity or fast by inflammatory adhesions to some neighboring part. It seems a somewhat anomalous position for the article of Dr. Robert Saundby, of Birmingham, upon stone in the kidney, to find it classed in this section, inasmuch as it is presented from a decidedly medical point of view, being devoted almost entirely to the symptomatology and medical therapeutics of this malady,—and an excellent article it is. So, too, if there is to be a separate section on Genito-Urinary and Venereal Diseases, it seems about as incomprehensible why Professor C. B. Nancrede's article upon stone in the bladder should not have been placed in it rather than in the section on general surgery. The lecture of Dr. G. L. Walton, of Harvard University, on dislocation of the cervical vertebræ, an excursion of a neurologist into the borders of the surgical domain, is an excellent production, and worthy of more than the passing notice which the narrowing space of this review may afford it. These dislocations are by no means such infrequent occurrences as one might suppose, if the experience of Dr. Walton may be regarded as truly indicative, he having encountered fifteen cases, ten of them since 1890. The reduction of these dislocations is exceedingly difficult, as is well known, by the ordinary efforts at extension by traction upon the head; while cases of spontaneous reduction by some accidental movement in lifting the patient about are not infrequently reported. Dr. Walton with Dr. Richardson has found by experiment upon the cadaver that reduction by simple extension is practically impossible, traction upon the head being powerless to lift the displaced articular process from its new position, even after the capsular ligament has been divided. "Extending the head diagonally backward toward the side of convexity in the neck occasioned by the dislocation, the articular process is easily raised and slight rotation quickly restores it to its normal place. In bilateral dislocation a similar movement should be gone through, so as to replace first one side, then the other."

The appearance of Professor James Tyson's lecture upon diabetes mellitus among the genito-urinary and venereal diseases marks another point where the sense of the proprieties seems somewhat strained; while one of the most prominent features of the disease is certainly the urinary one, this seems too little occasion for relegating an affection of such general nutritional relations to the category of the genito-urinary diseases. The lecture is chiefly estimable from the details of treatment in which the author indulges; he recommends highly the use of phenacetin or antipyrin in cases where the sugar proportion in the urine is low, but relies mainly upon codeine or some other preparation of opium. Those who have followed the former volumes of the Clinics will appreciate the lecture of Dr. F. S. Watson in conclusion to the article upon tumors of the bladder and their treatment, so prominent in the previous volume. It would be manifestly unjust to pass from the section of genito-urinary affections without mention of the lecture of Professor Marcus Beck, of London, upon cancer of the urethra, undoubtedly one of the best efforts published in the present volume.

It is exceedingly unfortunate that one is unable to deal with all the articles in the book as one would wish, but the review of forty-one separate and sensible articles does not fall within the possible capacity of one or two pages of the ordinary monthly journal; and while in every one of the articles which have failed of notice there are excellences to attract the reader, those which have been mentioned have been selected after perusal of the volume only as indicative of the average contents of the book. The sections upon gynæcology and obstetrics, upon pediatrics, upon dermatology and the other special subjects, are as fully and as ably taken up as in the previous numbers, the articles of Professor Forchheimer upon infantile syphilis, of Professor Rotch

upon common skin disorders of infancy, of Professor Skene upon the treatment of chronic ovarian inflammatory mischief, and of Professor Ohmann-Dumesnil upon spontaneous keloid, being especially notable.

AN AMERICAN TEXT-BOOK OF SURGERY FOR PRACTITIONERS AND STUDENTS. By Charles S. Burnett, M.D., Phindus S. Conner, M.D., Frederick S. Pennis, M.D., William W. Keen, M.D., Charles B. Nancrede, M.D., Roswell Park, M.D., Lewis S. Pilcher, M.D., Nicholas Senn, M.D., Francis J. Shepherd, M.D., Lewis A. Stimson, M.D., William Thomson, M.D., J. Collins Warren, M.D., and J. William White, M.D. Edited by William W. Keen, M.D., LL.D., and J. William White, M.D., Ph.D. Philadelphia: W. B. Saunders.

It is a difficult thing to give any just idea of a large book like the above within the limits of a review. You can form no accurate conception of a structure by the examination of a few stones taken from here and there for inspection. All we can hope to do is to set forth some of its leading ideas, and to give a sketch of its purposes with an estimate of how it fulfils them. We have here a work of some twelve hundred pages, written by some of the leaders of surgical thought in the United States, every one of the writers being both an authority and a teacher. The individual articles are not signed, and "the entire book has been submitted to all of the authors for mutual criticism and revision." A book so written is apt to obtain the benefit of a truthful review, as the critic knows not what individual he assails nor to whom he delivers the laurels. It is an easier labor to criticise fairly, without undue partiality or asperity, the opinion of a supreme court than of an individual judge, and these authors may fairly be said to constitute a court of last surgical resort. The opening chapter presents a clear and concise outline of bacteriology, giving those fundamentals with which surgeons should be familiar. This subject should have a prominent place in every surgery, and not be looked on as the dreams of theorists and visionaries. We would note that the author of this article doubts the authenticity of the bacillus of syphilis and affirms that of tetanus; says boric acid and salicylic acid are almost worthless as bactericides; considers that one-to-thirty carbolic acid is sufficiently powerful for surgical needs, that iodoform is not a germicide, but retards bacterial growth and serous oozing, and that the most powerful and certain bactericidal drug is corrosive sublimate. It seems to us that the doctrine of immunity should be accorded a fuller and clearer discussion. The article upon inflammation follows Burdon Sanderson in the belief that inflammation is not expressive of over-nutrition, but of damage and destruction, and accepts with some qualification and exceptions the microbic doctrine of its origin.

The acceptance of Senn's contention that inflammation and repair are actually antagonistic leads to a separate chapter on Repair. Now follows the consideration of Traumatic Fever, Suppuration, Abscess, Ulceration, Fistula, and Gangrene. In senile gangrene we are told, if there be a tendency on the part of the process to localize, to wait for the formation of a line of demarcation before interfering surgically; but if the gangrene continuously advances we are to amputate at once and high up. Next come chapters on Thrombosis, Embolism, Septicemia, Pyemia, Erysipelas, Tetanus, Scurvy, Tuberculosis, Scrofula, Rachitis, Wounds and Contusions. In this latter article we find a satisfactory study of shock and a gratifying indictment of the use of adhesive strips in the coaptation of wounds.

Under the head of Healing of Wounds and Contusions are found those diseases due to bacterial infection.

The consideration of Syphilis, Hereditary and Acquired, is thorough, scientific, and evidently the work of an accomplished syphilographer; it sets forth with clearness of teaching and accuracy of detail all of the protean manifestations of this disorder and the treatment to which they succumb, and is given additional value by



the numerous tables of differential diagnosis. The excision of a chancre is not recommended, but "cauterization or excision of an abraded surface soon after exposure and before the development of the chancre is strongly indicated." The author emphatically takes the position that we should refuse to give an absolute diagnosis of syphilis from a study of the chancre alone, but *must* wait for the confirmation or denial of the assumption of syphilis soon to be given by the conduct of the lymphatic glands. In treating syphilis we are to give mercury in a standard dose for two years. The standard dose is to be found by trial in each case. The dose is raised when new symptoms appear, and lowered again to the standard when they pass away. At the end of two years mixed treatment is given for six months. "If during this period any symptom of syphilis makes its appearance, the six months of mixed treatment should date from that time."

The article on tumors is the very best brief one we have ever read. It sets forth in the most luminous manner those facts of diagnosis, origin, etc., which are so difficult to the student and so abstruse to us all.

Next is presented the Surgery of the Vascular and Osseous Systems, and next Fractures. The space devoted to fractures has been used to the best advantage, but is entirely insufficient for a thorough exposition of so extensive and important a subject.

Next come Diseases and Injuries of Muscles, Tendons, and Bursæ, Orthopædic Surgery, and the Surgery of the Nerves. This latter article is an admirable exposition of a field of work which has had gleaned from it some of the most striking achievements of modern surgery. It sets forth in masterly consideration the diagnosis of lesions of special nerves and the operations to be done upon them. Most of this is recent surgery, and will be sought for in vain in most text-books.

Next come the Surgery of Joints, Dislocations, Diseases or Injuries of Lymphatics, and Diseases of the Skin and its Appendages. The Diseases and Injuries of the Head is a notable article. It deals with some of the highest problems of science and most remarkable surgical procedures. It will prove to the fossil knifeman a revolution and a revelation. It is an annihilating answer to the beastiarists who would prevent vivisection, for by vivisection were discovered the facts upon which cerebral surgery rests. Here are calmly considered, as if every-day proceedings, operations which the surgeons of but a few years ago hardly dreamt of. In regard to Lannelongue's operation for microcephalus we are told, "whether the operation will stand the test of time cannot yet be determined." Intracranial hemorrhage is set forth in a manner to command our admiration, and positive directions are given as to when, where, and how to trephine. In speaking of skull fractures some valuable rules are formulated. "If a fracture of the vault be simple, without depression and without cerebral symptoms, or if moderate cerebral symptoms have been present or are abating, or if a fracture be only suspected," treat expectantly; "but if any serious symptoms of intracranial mischief arise," trephine. In simple fracture, if depression be marked, do preventive trephining, even if symptoms are absent. In punctured brain-wound always trephine. The consideration of abscess and the results of a suppurating ear is excellent. We find a most authoritative discussion as to the treatment of epilepsy.

The Surgery of the Spine, again, is recent surgery; so bold, so brilliant, so scientific, it will amaze and anger every hidebound dogmatist like the Sangrado of Le Sage, and every superficial formulist like the Jenkins of Daudet, and all of those who would rather err with Galen than be right with any one else. The operation of laminectomy is granted graphic description, and is to be done for spinal fractures "if after six to ten weeks there is incontinence of urine with cystitis or incontinence of feces, and especially if there are also the development and spreading of bed-sores."

Next come the Surgery of the Respiratory Organs, Diseases and Injuries of the Nerves, the Surgery of the Digestive Tract, and Diseases and Injuries of the Abdo-

men. In intestinal obstruction the preference is given to inguinal colostomy over lumbar: intestinal anastomosis may be done with Senn's bone-plates, or by the old method (no rings) reintroduced by Abbe. Intussusception may be corrected by insufflation with hydrogen gas. Appendicitis is treated by salines until the bowels move freely, when opium is given. Hot fomentations favor plastic peritonitis. Cathartics are contra-indicated except during the incipient stage. Recurring appendicitis or perforative appendicitis is to be treated by laparotomy and removal of the appendix.

The Surgery of the Genito-Urinary Tract is ably presented. Nephro-lithotomy is to be done only after medical treatment fails, and when "there is no reason to fear grave organic disease of the other kidney. Suprapubic lithotomy is to be preferred if the stone is large and hard, or if the prostate is much enlarged with a pouched bladder, and if the kidneys are diseased Leiter's cystoscope is of great value in the diagnosis of vesical growths. Gonorrhœa is presented in one of the best articles of which we have any knowledge. Strictures of small calibre in advance of the bulbo-membranous junction furnish the typical condition for internal urethrotomy. In deep urethral strictures permeable only to a filiform, internal urethrotomy shows a higher mortality than do other methods.

The Surgery of the Female Generative Organs is excellently handled. The author attains a judicious and scientific mean between that radicalism which is a cousin of homicide and that excessive conservatism which is cowardice.

Diseases and Injuries of the Breast, Surgery of the Eye, Surgery of the Ear, Operative Surgery, Anæsthesia, Plastic Surgery, and Ligation of Arteries are presented in an excellent manner. The treatise on Operations upon Bones and Joints could be considerably improved. Amputations and Minor Surgery close the work.

This book has faults, and not a few, but its merits far outweigh its faults. It is essentially modern and aglow with the progressive spirit of the nineteenth century. It has no time for worn-out formulas and no use for dusty dogmas. As a consequence it may meet with some abuse, and this will be to its credit. Dr. Johnson knew this, for he said that when he wrote a pamphlet and was not attacked, he knew he had not struck hard enough to get a rebound. Hostile criticism, if inspired by anything but a love of truth, will do no harm. We should remember the noble saying of Bentley, that "no man was ever written down but by himself." This is a useful book, a practical book, in many particulars a great book. It will conquer a proud place for itself. It will have a large sale, and we believe will come to be regarded as the best presentation of the magnificent science of modern surgery. Many of the illustrations are original, and all but four of the half-tone cuts are really works of art. The get-up of the book is so distinctly in advance of anything we have yet seen that other American publishers must look to their laurels.

**PRACTICE OF MEDICINE.** A Manual for Students and Practitioners. By Edwin T. Doubleday, M.D., Attending Physician New York Hospital, Out-Patient Department, and Member New York Pathological Society; and J. Darwin Nagel, M.D., Adjunct to the Department of Nervous Diseases of the New York Polyclinic, Visiting Physician to the French Hospital, Member of New York County Medical Association. Lea Brothers & Co., Philadelphia. Price one dollar.

This addition to the Students' Quiz Series is only intended to state briefly the main facts known in regard to the diseases treated of. Like the others of this series, it has been written in the form of question and answer for the convenience of students. Theories regarding the origin of diseases have been avoided as much as possible, and none but English words have been used when it was possible to avoid the foreign equivalent. All the more recent authorities as well as the standard textbooks have been consulted. The writers are well fitted to execute the work satisfactorily, and have presented the material in a most systematic form. It is a matter



for regret that no illustrations accompany the text, but the addition of drawings would have added materially to the cost of the book and thereby increased the selling price. In the two hundred odd pages of this little book the student will find a vast amount of information tersely stated. It will be of great assistance in reviewing the many subjects treated of.

INTERNATIONAL MAGAZINE VISITING-LIST, 1893. Arranged for Practitioners by James C. Wilson, M.D., Physician to the German Hospital, etc. Philadelphia: J. B. Lippincott Co.

This little pocket visiting-list, of which there are two sizes, will accommodate thirty and sixty patients each week, and, although it contains three hundred and thirty pages, it can readily be carried in the ordinary coat-pocket. Not only can the name and address of the patient, as well as the number of visits made in a single week, be placed on a single line, but also the amount charged, the page of the physician's ledger, the diagnosis, etc., and a reference to a special page of the history as well. The last hundred pages are devoted to data in regard to obstetric engagements, vaccination records, mortality, special memoranda, and cash accounts. The first few pages contain a calendar, a table of doses, formulæ for hypodermic medication, a list of incompatibles, common poisons and their antidotes, medical thermometry, disinfectants, urinary tests, aids to the performance of artificial respiration, and a table giving a differential diagnosis between the more common eruptive fevers.

This little book has been admirably prepared for practical purposes, and there is nothing cumbersome or wasteful in its structure. Every inch of space has been utilized to the greatest advantage. To those who have use for such aids in their daily work no better book can be found, and those who have from year to year been using these conveniences had better examine this *multum in parvo* before purchasing any other.

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#### NOTE TO CONTRIBUTORS.

Manuscript accepted will be liberally compensated or reprints furnished in lieu of such compensation.

It is distinctly understood that all articles accepted are for our exclusive use and are not to appear in any other publication.

All matters of business and subscriptions to be sent to the Publishers. Manuscripts and books for review should be addressed to the Editorial Office, 319 South Eighteenth Street, Philadelphia. EDITOR.

# INTERNATIONAL MEDICAL MAGAZINE.

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## ORIGINAL COMMUNICATIONS.

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### *HYPERPYREXIA IN ALTITUDES.<sup>1</sup>*

BY JOHN M. KEATING, M.D., LL.D.,

Colorado Springs.

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I WILL not detain the society with a lengthy paper, partly because I have not had sufficient experience to give in detail cases of my own, nor have I had time to investigate the matter from the experience of other physicians and surgeons to the extent that I would like. When I came to Colorado a year and a half ago, the first thing that struck me as interesting was the fact that almost every disease which was accompanied by a temperature had a higher temperature than we know it at a sea-level, and that the temperature, to use the expression of a well-known physician here, "showed a crazy condition of the heat-centre,"—that, in other words, its instability was remarkable. I have noticed that my own children, suffering from the slightest form of indigestion, will have a temperature that, had I not been informed of it, I would look upon with a great deal of anxiety; that, though the temperature would register high and the nervous symptoms would be well marked, the general appearance and the condition of the individual would not impress one with a degree of anxiety which the bare record, should he read it, would give him.

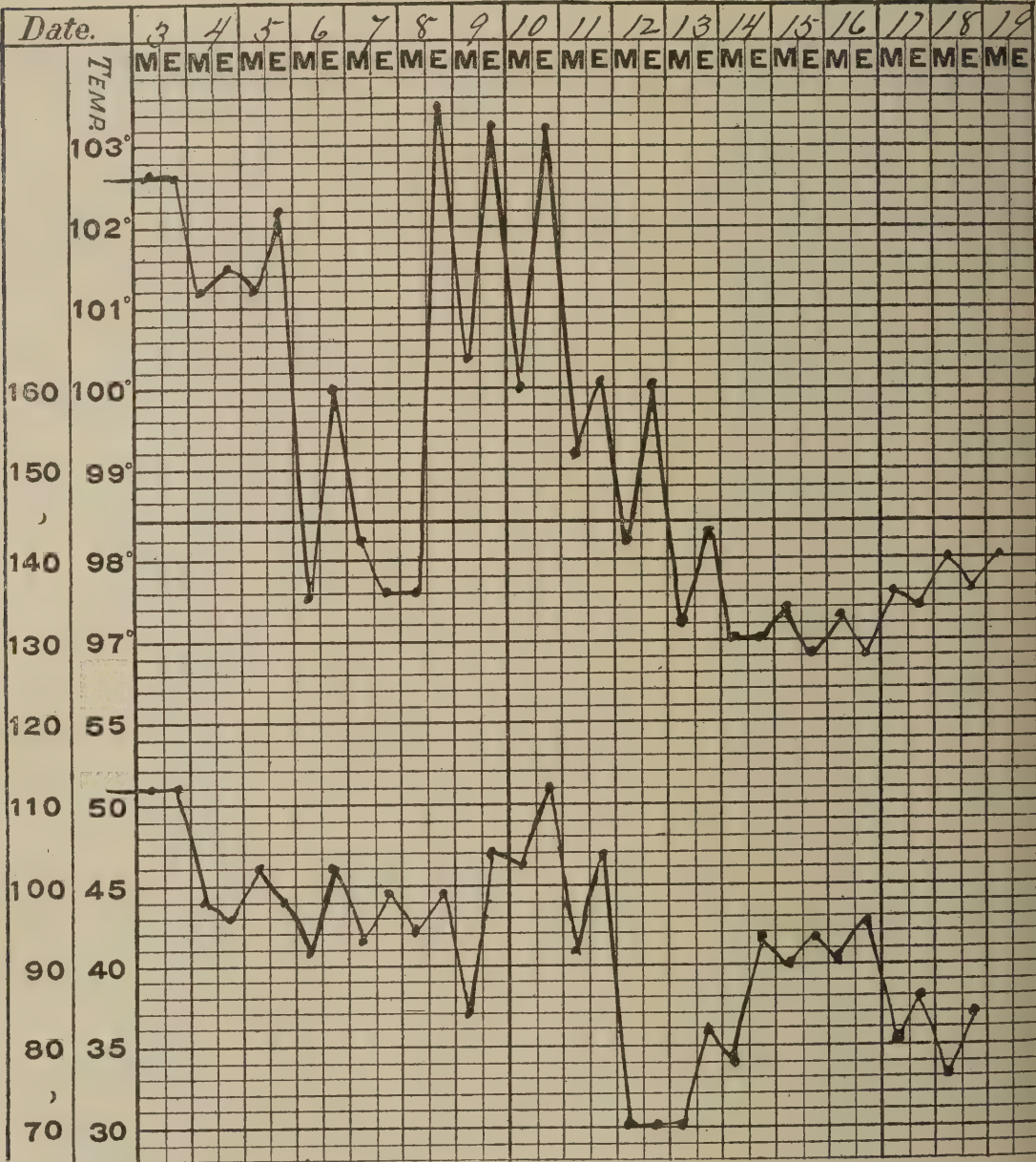
The first case I saw which called my attention particularly to this subject was a case of typhoid fever in a child about ten years old. Though this case showed very mild intestinal symptoms, the temperature record would be sufficient to alarm any one had it occurred at the sea-level.

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<sup>1</sup> Read before the American Climatological Association, at Richfield Springs, New York, June 24, 1892.



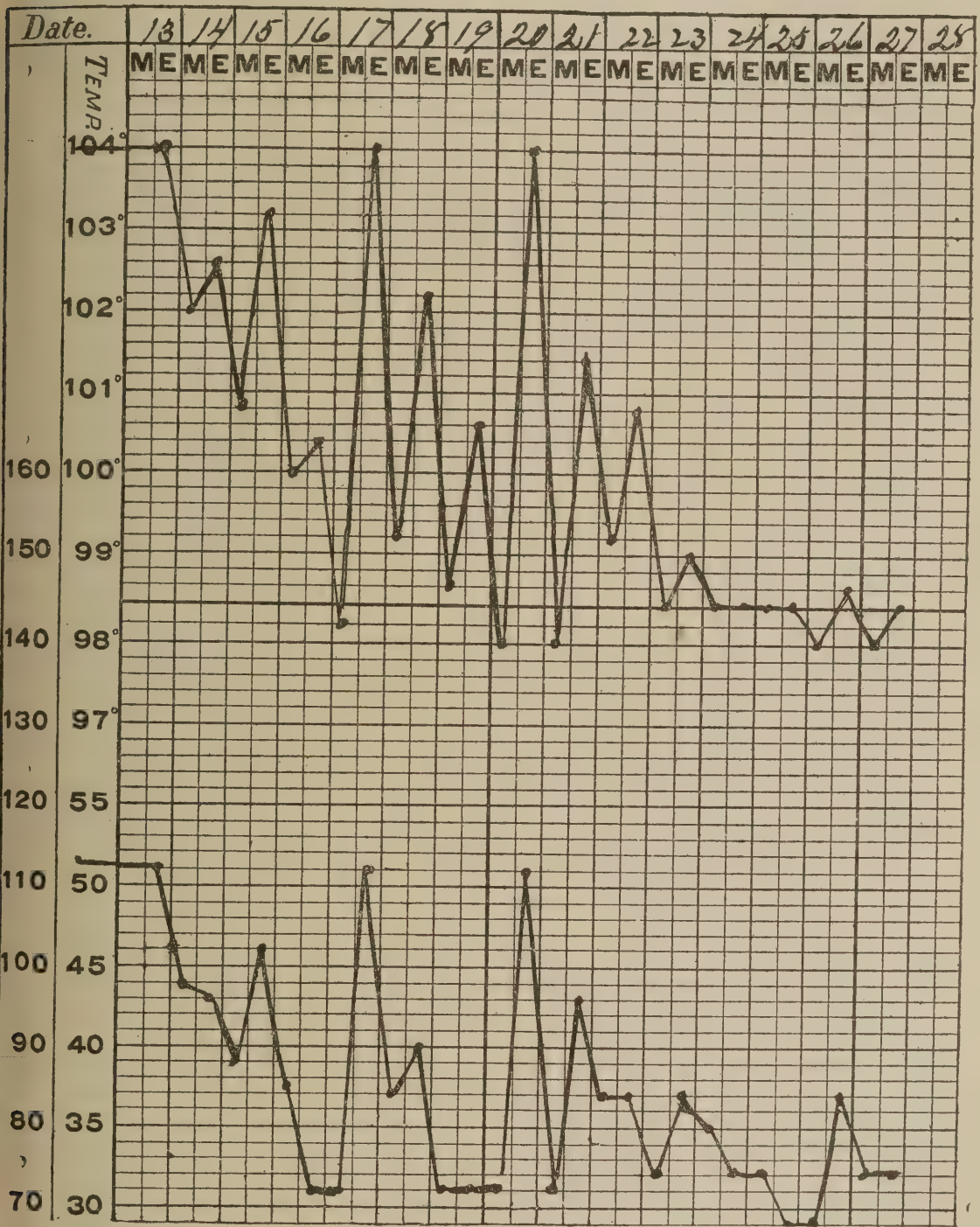
The following temperature charts, given me by Dr. W. A. Campbell, of this city, from a collection of over thirty observed by him and reported to the Colorado State Society this month, are marked examples of erratic temperatures. The symptoms and post-mortem evidences have proven these



cases of Dr. Campbell's series to be true typhoid fever. Is it not possible that the peculiarities of temperature herein exhibited, which I attribute to altitude, have been the cause of the name *mountain fever* being given to the typhoid fever of these sections?

About six months ago I saw a case of fibroid tumor of the fundus uteri, on which I operated with Dr. Campbell. The tumor was about the size of a lemon, and we succeeded in completely detaching it from the fundus, under the most careful antiseptic measures, and, though there was not a sign of any sepsis, the temperature chart which I present is an extraordinary example, to my mind, of the subject of this communication.

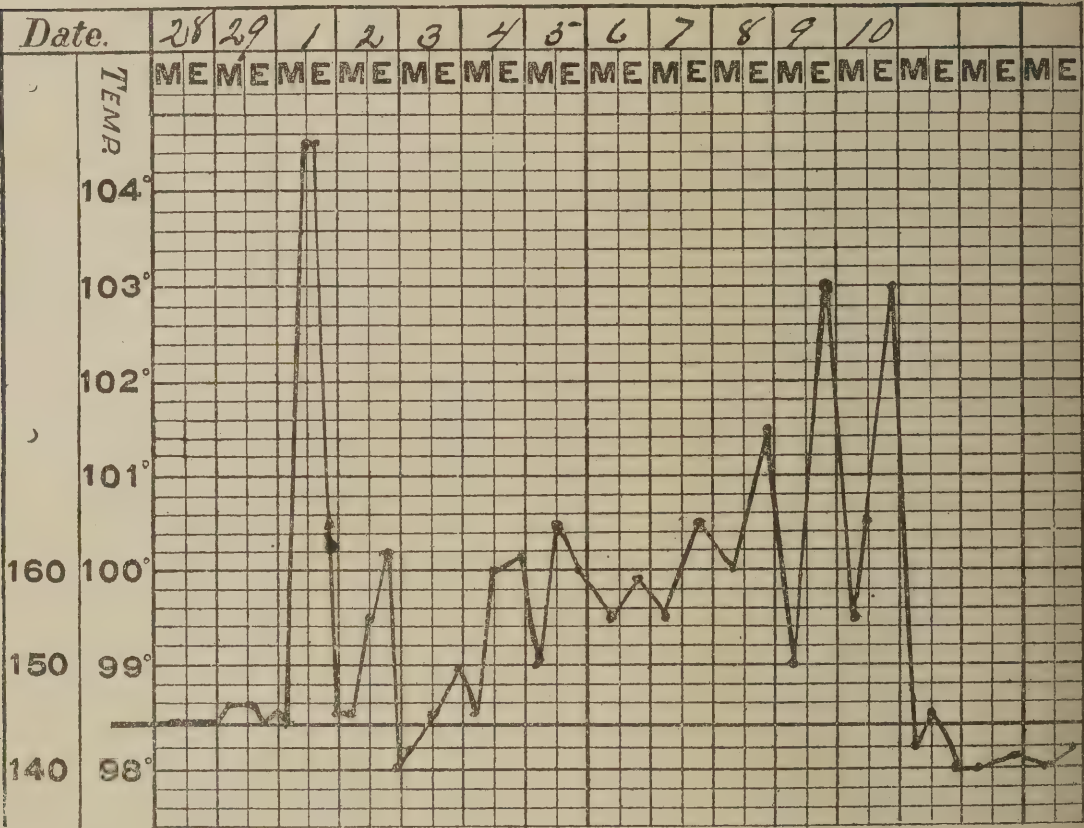
But not only do high temperatures form the basis of an interesting study, but, from what I learn, subnormal temperatures are by no means infrequent; indeed, they seem to be far more common than at the sea-level. It will be noticed in the above temperature chart of the woman with the



fibroid tumor that the temperature fell to 98°, and I understand that frequently after labor a subnormal temperature is noted, accompanied by a chill, which naturally excites great alarm, but which is by no means the same indication for some septic condition as it would be with us at the sea-level. I can offer no explanation beyond the fact that the nervous system is, to a great degree, at a tension in an altitude, and whether there can be a



purely nervous temperature, apart from an inflammatory one, I leave it to those who are more conversant with this subject to decide. On several occasions I have failed to find any local cause whatever that would account for the height of the temperature that I have seen registered, and, as I have noticed a sudden reduction equal in its surprising acuteness to the rise, followed by a sedative, such as morphia and atropia, or even bromide, I must believe that we cannot take the temperature chart as an indication of the degree of inflammatory process with the same assurance that we would at a



lesser altitude ; that, in other words, temperature alone should not influence to the same degree our prognosis and treatment. I have seen nowhere recorded this interesting condition, nor have I had time to find out whether surgical operations are followed by the same result as was noted in this case of mine. But I hope at some future day to be able to give more definite statistics upon this subject, and I now simply give this paper with the hope that it will provoke some discussion, that we may hear the experience of those who have lived a longer time than I have at an altitude.

I will make a few quotations from the interesting book of Edward Whymper, "Travels among the Great Andes of the Equator. 1892." Having reached the altitude of sixteen thousand six hundred and sixty-four feet on Chimborazo, he says, "we are feverish, have intense headaches," etc. Again he says, "The symptoms come under the three heads, headaches, disturbance of natural manner of respiration, and feverishness. . . . We were all feverish, but no observations were made until 1 P.M. on the 28th,

when my own temperature was found to be  $100.4^{\circ}$  F. . . . At Guaranda (altitude eight thousand eight hundred and ninety-four), on the 23d, my temperature was  $98.2^{\circ}$ , and at 10.30 A.M. on the 27th it was  $98.4^{\circ}$ ." From the appendix we take the following :

"The temperatures given in the following table were taken at the suggestion of Dr. W. Marcet, F.R.S., with a Hicks patent clinical registering thermometer, graduated to fifths of degrees, of the kind which is now almost invariably employed ; and the observations were made exclusively upon myself, by placing the bulb of the thermometer as far back under the tongue as was convenient, and allowing it to remain there (the mouth being closed) for ten to twelve minutes. In most cases the observations were repeated, though I find in practice that the highest obtainable temperature is registered within ten minutes.

"My temperature is slightly lower than that which is considered the standard (namely,  $98.4^{\circ}$  F.), and the mean of a large number of observations taken midway between meals would probably be close to  $98.3^{\circ}$  (provided the observations were made at the same part of the body). The extremes of the temperatures given in the table are both higher and lower than I have remarked (upon myself) on any other occasions.

"After the first experiences upon Chimborazo were over, no effect was observed that could be attributed to diminished pressure, and the most severe cold that we experienced seemed scarcely to exert any influence. The low readings on the summits of Cayambe ( $97.1^{\circ}$ ) and Chimborazo ( $96.3^{\circ}$ ) must be ascribed to exertion and to abstinence from food,—principally to the latter cause. The following details, given in chronological order, will render any further remarks unnecessary :

"November 21, 28 ; December 10, 23, 1879 ( $98.5^{\circ}$ – $98.4^{\circ}$ ).—The readings at Kingston, Colon, Guayaquil, and Guaranda were all taken in-doors, before breakfast. With air temperature ranging from  $57^{\circ}$  to  $80^{\circ}$ , and barometer 21.990 to 30.000 inches, bodily temperature varied only one-third of a degree F.

"December 27 ( $98.4^{\circ}$ ).—In tent ; first camp on Chimborazo. After breakfast, and before active exertion.

"December 28 ( $100.4^{\circ}$ ).—In tent ; second camp on Chimborazo. The recorded temperature is probably considerably lower than that which was experienced in the previous night. In the next six days I ate much less than usual ; and by

"January 2, 1880, temperature was reduced to  $97.9^{\circ}$ , at the second camp.

"January 8 ( $98.4^{\circ}$ ).—In tent. Four days after the first ascent of Chimborazo, temperature had returned to its ordinary level, and deviated very slightly from it during the next three months.

"January 29 ( $98.45^{\circ}$ ).—In-doors, two hours after dinner.

"February 9 ( $98.65^{\circ}$ ).—Open air, in shade, at the highest point attained on the south side of Illiniza. Exertion had been severe and continuous since 8 A.M.



"February 18 (98.2°).—In tent, close to the summit of Cotopaxi. Taken after ascending from the first camp (a rise of about 4400 feet). Barometer stood at 14.798 inches. Experienced headache and gasping for breath on the 18th, but no headache on the 19th. Bodily temperature did not seem affected at all.

"February 20.—In tent; March 6, in-doors, do not require mention.

"March 10 (98.6°).—Open air, on the summit of Antisana. The reading was taken after a meal. Exertion had been severe and continuous since 6 A.M.

"March 22.—In cave; March 25, in-doors, do not require mention.

"April 3 (99.1°).—In tent; camp on Cayambe (altitude, 9323 feet). Felt feverish, and could only attribute it to exposure on March 31.

"April 4 (97.1°).—Open air, on the summit of Cayambe. The reading was taken one hour after arrival at the summit. Exertion had been considerable, and nothing had been eaten since 4 A.M.

"June 8 (97.9°).—In tent; camp on north side of Illiniza. In the months of April and May I was almost continuously unwell, and frequently feverish; but by the commencement of June bodily temperature had fallen to its usual level.

"June 28, 29; July 1 (97.7°–98.4°).—On Carihuaiazo. The differences recorded on these days are accounted for by the readings having sometimes been taken before and sometimes after meals.

"July 2 (97.8°).—In tent. Does not require mention.

"July 3 (96.3°).—Open air, on the summit of Chimborazo. There was a moderately strong and cold wind. Air temperature was 15° F. Had eaten scarcely anything since 5 A.M. This was the lowest record on the journey.

"July 5 (98.25°).—In tent. Bodily temperature had by this time risen again to its ordinary level, and it fluctuated very slightly until return to Panama.

"August 3 (99.2°).—In-doors, at Panama. The increase is to be attributed to the hospitality of the residents on the Isthmus more than to the deadly nature of its climate. On August 7 the maximum was attained (101°), but from that time temperature commenced to diminish, and on

"August 14, at St. Thomas, with almost the highest air temperature which was noted on the entire journey (84°), it had again fallen to its ordinary level."

*ALTITUDE IN AFFECTIONS OF THE HEART.<sup>1</sup>*

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Boston.

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WHEN our President asked me to contribute something to this meeting I told him I would introduce a discussion, which I thought desirable, on climate in affections of the heart, and I will do so by laying down a few propositions, hoping that a full and free discussion may be excited.

One of the troublesome questions which every physician who advises change of altitude to a patient is obliged to answer is, how this change will affect the husband or wife, or father or mother, or some other member of the patient's family, who is supposed to have some affection of the heart.

A great deal of serious injury has been done by improper answers to this question. It hardly seems necessary to say that a proper answer cannot be given without an exact diagnosis of the condition of the heart in question, and that unnecessary exclusion of a person from a sojourn in high altitude may prevent the patient himself from changing climate, and perhaps sacrifice his life, just as the injudicious permit of the person with suspected heart-trouble to go into a high altitude may sacrifice his.

Dr. Loomis, in a paper read before this Association in 1886, gave several instances of fatal results following improper ascent to even moderate altitude (two thousand six hundred feet), on the part of patients with organic heart-disease. For the sake of making the discussion clear and exact, I will assume the altitude in question to be from four to six thousand feet, and will try to classify the principal kinds of cardiac cases which will present themselves for our decision.

1. Cases of valvular disease with sufficient cardiac enlargement or derangement of the circulation to make the diagnosis certain.

While a great difference in risk in such cases must be admitted, dependent upon the compensation, the age of the patient, etc., it is safer to forbid the chance to such patients, for we know that in any case, even at the sea-level, compensation, for some unknown and unexpected reason, may suddenly cease, and of course this may be precipitated by such a change of pressure as would be experienced by a change in altitude of five thousand feet. I say this knowing that Dr. Solly and others have had young cardiac patients with good compensation, who have been not only uninjured, but invigorated and improved, by residence in Colorado.

2. Cases of chronic myocarditis, or fatty degeneration.

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<sup>1</sup> Read before the American Climatological Association, Richfield Springs, New York, June 24, 1892.



These should be rigidly excluded, and these are the cases about which more care should be exercised. They are the cases among which there is such sudden fatality from apparently slight variations from a dull routine of life. A sudden change of conditions under which the heart is laboring stops it altogether. This change may be one of atmospheric pressure, a change of nerve-influence, a sudden excitement of joy or grief, a fall, a shock of any kind, mental or physical. There may have been symptoms calling attention to the heart (or there may not have been), or the symptoms may have been wrongly interpreted,—as, *e.g.*, calling an attack of angina pectoris “gastralgia.” Many cases on superficial examination have been declared sound chiefly because no cardiac murmur was discovered, when a more careful examination would have resulted in the probable diagnosis of one of the above-mentioned conditions. A careful examination should be made of the area of cardiac dulness. It will often be found enlarged in cases of chronic myocarditis. The character of the first sound at the apex should be carefully studied. A very valvular first sound, an almost entire loss of the booming or muscular quality, with a weak and irregular pulse in a man no longer young, especially in connection with any subjective symptoms, points to myocarditis or fatty degeneration. Breathlessness on slight exertion, with a feeble, irregular pulse, are strong confirmatory signs. This is the kind of a case which it is much more important to keep out of high altitudes than those of valvular disease. A person over fifty years of age with marked cardiac symptoms, or any of the signs mentioned above, must not be allowed to make the change.

3. Cases which present a murmur anywhere in the cardiac area, but in patients who have never had any symptoms, and who on physical examination show no other evidence of disease.

The murmur is fast losing the undue importance which it has held for many years, and falling into its proper place as only one link in a chain of evidence. Even life-insurance companies accept some applicants with cardiac murmurs. Patients with systolic murmurs, which are known to have existed many years without any enlargement of the heart or any alteration of its normal sounds, may be allowed to go into high altitudes. Patients with murmurs in diastole must be advised much more cautiously, as these murmurs are more surely indicative of serious organic disease.

4. Cases of nervous palpitation.

Patients with functional palpitation cannot be considered in one class. In many it is quite temporary, due to errors in diet or mode of life, which can be easily corrected. When these errors have been corrected, of course there can be no objection to the patients going into a high altitude.

Affections of this kind due directly to some morbid condition of the nervous centres may be divided, as by Eskridge, into two classes,—that of patients who have inherent nervous temperaments, and that of those who are nervous from malnutrition. The latter, by pretty general consent, are likely to be improved, and consequently may be recommended the trial of

a high altitude; but the former, those of inherent nervous temperament, are usually made worse by it, and consequently should be forbidden the high altitude.

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*RESULTS OF THE EMPLOYMENT OF TUBERCULIN AND  
ITS MODIFICATIONS AT THE ADIRONDACK  
COTTAGE SANITARIUM.<sup>1</sup>*

BY E. L. TRUDEAU, M.D.

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THE principal interest which attaches to the cases I am about to draw your attention to is that in these patients both the main factors concerned in the causation and development of tuberculosis have been treated at the same time, a change of climate, a systematic restful open-air life, feeding, and hygiene being invoked to efface that nutritive vice which constitutes susceptibility, while, at the same time, a method said to exercise a specific curative influence upon the existing pathological processes was regularly applied. Usually we must content ourselves by placing our patient amid the most favorable environment attainable, whose beneficial influence is primarily aimed at the existing malnutrition and secondarily at the diseased processes. But even if we succeed in arresting the progress of the malady by these means, and in improving nutrition, the patient still carries for a long time an infectious though dormant element, ready, like a smouldering fire, to break out, and sooner or later again overcome the newly-acquired resistance. The ideal plan of treatment in tuberculosis would therefore be one which would enable us, while improving our patients' general condition, to stamp out this infectious element within their tissues and thus obtain a more permanent cure. Koch's method, perhaps more than any of the many hitherto proposed, gave promise of doing this; and although its extravagant claims have not been sustained by experience, and it has fallen into general disuse, some investigators, prominent among whom may be mentioned Klebs and Hunter, have clung to the belief that tuberculin contains a remedial element, that many of its injurious substances may be eliminated, and that, even if the exaggerated specific virtues claimed for it cannot be verified by experience, yet we may ultimately obtain by following Koch's suggestion a product free from the dangers of tuberculin, and yet capable of instituting in tubercle to a greater or less degree reparative changes leading to cure. The writer has sought by a brief study of these cases to obtain a certain amount of evidence as to the efficacy and dangers of Koch's tuberculin, when exhibited to patients living under the most favorable surroundings attainable, and also as to the relative curative value and dangers of the modifica-

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<sup>1</sup> Read before the American Climatological Association, Richfield Springs, New York, June 24, 1892.



tions proposed by Hunter. Are we in the future to cast these bacterial products aside and rely entirely on a favorable environment, and are our efforts to be directed solely to improving nutrition, as in the past, or may we yet hope that with an enlarged knowledge of these complex products and their effects, a substance may yet be produced free from danger to the patient, and capable of staying to a greater or less degree the ravages of a disease against which our best-directed efforts are at present too often of no avail?

#### A.—TREATMENT BY KOCH'S TUBERCULIN.

For the sake of brevity, the main features of these cases only and the results obtained will be stated. Thirteen patients were treated at the Sanitarium by Koch's tuberculin for an average of eleven months. The longest treatment was carried on for eighteen months, the shortest for four. The injections were discontinued for about six weeks, at intervals of from two to three months; they were usually given daily in small doses, constitutional disturbance above 100° Fahr. being avoided, if possible. As the doses became large, the intervals between the injections were increased. Diminishing susceptibility to tuberculin was observed in most patients as the result of previous treatment. At whatever stage of the disease they were classed, the cases were selected as presenting some favorable features, though all showed the rational and physical signs of pulmonary tuberculosis and their expectoration contained bacilli. Six were classed as incipient, four as advanced, and three as far advanced. The results were three apparently cured, and in three the disease was arrested, three improved, and four steadily failed. Of the six incipient cases, three were apparently cured, two had their disease arrested, and one was improved. Of the four advanced, two were finally classed as arrested and two failed. Of the three far advanced, two were improved and one failed.

The average gain in weight for nine patients was thirteen and one-quarter pounds, the loss for three patients three and three-quarter pounds. The complications were tubercular inflammation of ankle-joint once, fistula in ano once, hæmoptysis twice, inflamed non-suppurating cervical glands once, and fresh pulmonary involvement twice.

These results, even in selected cases, are on the whole but little better than are usually obtained by the climatic and out-of-door plan alone. They illustrate, however, that in cases where nutrition is constantly maintained at a high standard, more can be expected of tuberculin than where the reverse holds good. The improvement which almost invariably follows the injections in apyretic cases, and is so encouraging to patient and physician, does not seem to be continuous, but ceases before a cure is effected. The dangers incident to the injections are undoubtedly greatly lessened by the use at first of small doses, by close supervision of the invalid's habits, and by good climatic and hygienic surroundings. They are, nevertheless, real, and some of the complications seem to have resulted from the treatment.

Notwithstanding my impression in many cases was that, for a time at least, a distinctly beneficial effect was produced, not so much on the general condition of the patient as on the malady itself, unfortunately the cases most suitable for this treatment are precisely those in which recovery may be hoped for under the more tedious but much safer climatic and out-of-door plan, but in some at least of those under observation the cure was apparently hastened by the injections. Koch's method is certainly the first proposed which, judged by the physical signs, can produce a specific impression on tubercle, even though this impression may without any apparent reason often ultimately tend to an aggravation rather than a cure of the disease. Its uncertainty in this respect is its greatest drawback, and is no doubt due to its being a mixture of good and evil, a combination of many elements, both remedial and injurious, as yet but little studied or understood. In acute cases with high fever it has seemed only to hasten the inevitable end. Even in its crude state it has undoubtedly a really beneficial influence, and in the apyretic types is capable in skilled hands of inciting reparative partition processes in tuberculous tissue, and of even turning the tide in favor of an ultimate arrest or cure of the disease. Its uncertainty of action and its very evident dangers have seemed to me, however, to outweigh its curative influence, and until further research has opened the way to a safer treatment by this method, our sole dependence must still be placed on a favorable environment, and our best efforts continue to be directed to a thorough application of all measures which improve nutrition.

The names of Klebs and Hunter are most prominently associated with the idea of eliminating from tuberculin some of its dangerous elements while retaining its curative ones. Klebs has seen fit to surround his work with the same mystery which has hovered over this product from its first discovery, and has given no exact data as yet which would enable others to produce his "tuberculocidin" or test his conclusions. Hunter, on the other hand, has given his methods in such clear and concise terms that no difficulty is experienced by the bacteriologist in preparing the substances he recommends. As a result of his researches he has proposed two modifications of Koch's tuberculin, designated as B and CB, both of which bring about in lupus certain reparative changes tending to cure but unaccompanied by fever, and each varying greatly in the character and intensity of the local reaction it produces. Following Hunter's directions explicitly, I found no difficulty in preparing in my own laboratory from tuberculin the modifications he has proposed, and a set of experiments in animals to test their relative value and dangers was at once undertaken. The results have been given in a paper read recently before the Association of American Physicians, the conclusions reached being, first, that CB contains much less of the remedial element than tuberculin and is apparently quite as dangerous; second, that modification B is as efficacious as tuberculin and free from some of its dangers. In view of this evidence the use of CB was discontinued at the Sanitarium, and modification B alone tested.



## B.—TREATMENT WITH HUNTER'S MODIFICATION.

Ten patients were treated at the Sanitarium by injections of this substance; the longest period during which the treatment was continuously administered was six months, the shortest three weeks, the average about five months. Four cases were classed as incipient, three as advanced, and three as far advanced. Though these patients were all selected for some favorable feature in their malady, they all had pulmonary tuberculosis and bacilli in their expectoration.

The results were four apparently cured, the bacillus having disappeared from the expectoration of all, though one still showed in his scanty sputum a few elastic fibres. All these were incipient cases. Of the three advanced cases, in one the disease was arrested, one was improved, one was unimproved. In the three far-advanced cases, one was improved and two unimproved. The average gain for eight patients was six and three-fourths pounds, the loss for two patients five and a half pounds. The complications were fistula in ano once, and once a prostatic swelling, which disappeared without suppurating. No new areas of disease were developed in the lungs, though it undoubtedly progressed in those who remained unimproved by the treatment.

These results, though limited to so few cases, are certainly encouraging, and are better than are usually obtained by climatic and hygienic treatment alone. To any one familiar with the irregular course and relapsing nature of pulmonary tuberculosis it is quite evident that no conclusion of value as to any special treatment for this disease can be reached in a few months; but as far as such a limited experience can prove anything, I have been favorably impressed with the freedom from ordinary complications and with the excellent results produced in so short a time by injections of this modified tuberculin. More extended research and a clearer knowledge of the various elements, both beneficial and injurious, contained in bacterial products, as well as of their effects upon tubercular animals, may lead in the future to still further improvement in this as yet tentative method. The disappearance of the bacillus, even though it should prove to be temporary, is a fact of some significance. The gain in weight was not as marked as might have been expected, but may in a measure be explained by the comparatively short duration of treatment. The modified tuberculin was first given in doses of three milligrammes daily, and slowly and steadily increased so long as no rise of temperature occurred; it was carried finally to eleven hundred or twelve hundred milligrammes. No general reaction at all took place in apyretic cases, and local reaction was less marked than is the case in tuberculin injections. It was nevertheless perceptible, and the changes brought about in the diseased areas were the same as occur more slowly in the spontaneous arrest and cure of phthisical lesions by natural methods. In two of the feverish cases nothing but an apparent aggravation of all the symptoms resulted from the injections, which were promptly discontinued.

In the two others the temperature gradually fell, and marked improvement occurred. Specific medication, to whatever degree of perfection it may attain, will necessarily best be applied in conjunction with climatic and hygienic measures. At present its limitation to early and nearly apyretic cases seems indicated.

Hunter and Klebs have confined their labors entirely to the products of the tubercle bacillus as found in Koch's tuberculin, and Hunter has apparently been partially successful in already obtaining an improved substance, one which causes much less fever, and is evidently much less apt to bring about an aggravation of the disease and dangerous complications. Kinnicutt's experience in the wards of St. Luke's Hospital, and my own observations bearing both on the clinical aspect of the question and on experimental tuberculosis in the laboratory, are in accord thus far, and point to the advantages of Hunter's modification B over crude tuberculin. In view, however, of the very evident limitations of our chemical knowledge of the true nature of bacterial products, it has seemed to me that the facts already won by a chemical study of the subject might be supplemented by further animal experimentation with pure cultures, as they can be grown by any bacteriologist, and that some of the mystery which has so long clung to these products might in a measure be dissipated by determining,—first, whether liquid culture of the tubercle bacillus contains a remedial element of sufficient efficacy to cure tuberculosis anywhere and in any animal; second, whether this substance is to be found in the bacilli themselves or in the culture-medium in which they have developed. In the paper already referred to evidence has been offered showing, *first*, that liquid cultures contain a remedial substance with which I have been able to cure inoculation tuberculosis in the rabbit's eye; *second*, that this remedial element is to be found in the beef-broth in which the microbes have been developed; *third*, that a glycanne extract of bacilli, freed by washing from the culture-medium which clings to them, tends in animals to favor, rather than retard, the spread of the disease.

These facts are significant and encouraging; they indicate the need for further research, and that we may entertain a reasonable hope that a substance which may prove of decided remedial value in human tuberculosis may yet be obtained from the various products formed in artificial culture-media by the growth of the tubercle bacillus; and it would seem that if Koch's suggestion has been called a "shot in the dark," it was nevertheless well directed by a skilful hand, and needs, perhaps, but the light which future research may yet bring to make it effectual.



*A METHOD OF COOLING WATER IN HOT CLIMATES.<sup>1</sup>*

BY THOMAS DARLINGTON, M.D.,

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IN the hot, arid region comprising the southwestern part of the United States and Northern Mexico, a method of cooling water exists, which, while it sufficiently cools the water for drinking purposes, is fraught with certain dangers that have not as yet been brought to the attention of the medical profession. This method consists in putting water in what is termed an olla.

An olla is a pot or jar made of clay in a peculiar manner. These jars are made by the Indians. The clay is first thoroughly kneaded with fine grass-seed, then a bowl is taken to form the base, and then this is built upon by adding to the sides small pieces of clay and patting them with a stick, after which the jar is roasted over a small fire. Inasmuch as it is not glazed, and as in the process of roasting the grass-seed is burned out, the pot becomes quite porous. They are made of various sizes, but as a rule hold about two gallons. When water is put in, a sweat or moisture soon appears on the outside of the jar, and very slowly the drops form and run off. It is the evaporation of this moisture on the outside of the vessel that causes the cooling.

This principle of cooling depends upon a well-known principle in physics, that of the absorption of heat by a body when it changes its form from a solid to a liquid or gaseous state. In order that water may change from a liquid to a vapor, nearly 1000° of heat must be absorbed and become latent. So when the olla, covered with moisture, is hung in a place where a dry breeze can continually reach it, the moisture on the outside rapidly evaporates, and this extracting the heat cools the entire contents. So great an amount of heat is lost that the difference between the temperature of the air in the shade and the water is from 20° to 40°. The dryer the atmosphere, and the more the breeze, the cooler the water becomes.

When one is accustomed to ice-water and ice cannot be procured, it is a great temptation to get cool water by this means; but as in many places in the Southwest the water in summer often contains the micro-organisms of the so-called "mountain fever," or of malaria, or typhoid, or other diseases which frequent hot climates, the spores of these germs get into the interstices of the vessel, and, notwithstanding the fact that boiled water is used, soon

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<sup>1</sup> Read before the American Climatological Association, Richfield Springs, New York, June 24, 1892.

contaminate the freshly-boiled water, and the whole becomes putrid. For in the boiling, although the bacilli themselves may be destroyed, their spores are not. Particularly is this true because the alkaline water of the West is especially suited for such fermentation.

At the hospital that I had charge of I have seen recently-boiled water put in such a jar, and, though it had previously been thoroughly rinsed, become, on a hot day, unfit to drink within four hours; and within half a day it had a distinctly putrid odor. So these ollas, though they cool the water, are frequently productive of much harm. Invalids, who are sent to this region for their health, should be cautioned against drinking water from such a vessel. Only glazed vessels should be used for drinking water, and these may be cooled by wrapping a damp cloth around the outside.

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## *PHYSIOLOGY OF THE RESPIRATORY AND CIRCULATORY CHANGES AT BIRTH AS RELATED TO ASPHYXIA AND ITS TREATMENT.*

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THERE is no lack of proper methods for the treatment of asphyxia at birth, but medical literature gives evidence that these are oftentimes too empirically employed. There is need of a better appreciation of the physiological changes by which the dependent organism becomes independent.

These changes are essentially physical and comprise three groups, viz.:

1. Expansion of the lungs and establishment of independent respiration.
2. Changes in heart-structures, with alterations of the blood-currents.
3. Closing of blood-vessels peculiar to the foetal circulation.

Only the changes that occur immediately and that are essential to the transition from foetal life are here included. Others occur secondarily and in consequence of these, but have no positive relation to the asphyxia which may be present at birth.

It will be seen that these primary changes take place in the order in which they are here grouped; and further, the attempt will be made to show that the second and third groups, comprising the circulatory changes, occur only in consequence of the first or respiratory changes, and in obedience to purely physical forces.

In studying the first group we have to consider, as essential parts of the respiratory apparatus, the sensory nerves, special and general, the respiratory centre in the medulla, and the lungs.

The respiratory action is essentially reflex, the centre in the medulla presiding over the function, and the lungs furnishing the oxygen that sup-



plies the need which calls forth the act. These facts are so well recognized as to need here no argument in their support. But there arises the important question as to the direct exciting cause of the inspiratory act.

Upon this point there are two leading views. Some regard the contact of impure, venous blood with the respiratory centre as the chief stimulus.

Others hold that the chilling effect of the atmosphere upon the cutaneous sensory nerves constitutes the chief stimulus to the respiratory centre. Whether this truly explains the fact or not, there are many cases where respiration occurs immediately upon delivery without appreciable interference with the placental circulation.

Now, while it is fully accepted that both of the influences mentioned are active respiratory excitants, the extreme advocates of either view fall into the error of disregarding the special sensory nerve of the respiratory apparatus. This nerve, the pneumogastric, we may assume is endowed in a high degree with its special sensibility,—i.e., to the need of oxygen in the lungs; and to the support of this assumption we may present these two easily-determined facts: first, that the want of oxygen is first felt in the lungs; second, that after the pneumogastrics have been cut the urgent need of oxygen is apparently not appreciated by the animal subject, although by reason of the greatly retarded respiratory movements insufficient oxygen is furnished, and even though, as is the case early in the experiment, the respiratory centre is in a normally responsive condition.

If our assumption be correct, we have then in the pneumogastric a highly sensitive nerve that will appreciate a lesser deficiency of oxygen than would cause a stimulation of the respiratory centre by direct contact. If, then, the foetal circulation be interrupted, the pneumogastrics will be first to appreciate the need of oxygen and to send the impression to the medulla.

Regarding the second view of the origin of the stimulus to respiratory movement, the question is as to the relative influence of the pneumogastric nerves (special) and the cutaneous sensory nerves (general) as conducting media. We may not be able to reach definite conclusions in this direction, but several points are important. We must note first that the *impressions conveyed* by these two sets of nerves must differ, for the reason that a nerve of general sensibility cannot perfectly appreciate the special impression for which the special nerve has been adapted. Again, the *impressions presented* to the two sets of nerves differ essentially; that presented to the cutaneous nerves being that of temperature, while that presented to the pneumogastrics is that of want of oxygen. Furthermore, where the action of the two sets of nerves can be separately demonstrated we expect to see different effects; by the influence of the cutaneous nerves a sudden, deep inspiration, simply from shock, by the pneumogastrics moderate and frequently recurring inspirations corresponding to a recurring need of oxygen.

It must doubtless be admitted that the inspiratory act may be readily excited by the distinctive impressions conveyed by either set of nerves, provided the respiratory centre is responsive. For the complete establish-

ment of respiration, however, the influence of the pneumogastrics is necessary, for neither the respiratory centre nor the cutaneous sensory nerves are sufficiently sensitive to the want of oxygen to maintain an efficient respiratory movement, as may be proven by cutting the pneumogastrics.

With the respiratory centre in a responsive condition we expect inspiration always to occur, on account of either the impression received through the pneumogastrics or that received through the cutaneous nerves, or possibly on account of the irritability of the centre itself to the direct contact of non-oxygenated blood. However, when for some reason respiration does not occur soon after interruption of the placental circulation, the respiratory centre loses its responsiveness in a degree proportionate to the length of time during which it has been deprived of nourishing blood. *And this is the condition that presents in asphyxia.* Bearing upon this fact we reflect that if the fault were simply with either set of sensory conducting nerves before mentioned, the other set would still convey the impression to the centre; for we may reasonably conclude that the irritability of the sensory nerves would be present even in profound asphyxia.

In the consideration of the second group of changes, which follows, further reference will be made to the first-mentioned of the first group,—*i.e.*, expansion of the lungs. And I will premise the study of the circulatory changes by the assertion that these are to be explained entirely upon physical grounds, and that they depend for their cause upon primary expansion of the lungs. The latter proposition is stated in a general way in some of the text-books, but its explanation as given has always seemed to me incomplete and unsatisfactory. And feeling convinced that this important fact is not generally recognized, I shall attempt to substantiate the assertion made by aid of the accompanying diagrams. These are not intended to be anatomically accurate, but rather to show the physiological relations of the important structures before and after respiration has been established.

Let us first look at the conditions before respiration has occurred, as shown in Fig. 1.

The peculiarities of the foetal circulation are adapted to accomplish two objects. First, the placenta and umbilical vessels provide for the aëration of the blood of the foetus and its conduction for that purpose. Second, the Eustachian valve and foramen ovale provide for the conduction of the current of freshly-aërated blood towards the head in as direct a course as is possible. This object is aided also by the ductus arteriosus in the following manner: as the fresh blood, which has passed directly to the left side of the heart through the foramen ovale, is forced into the aorta by the ventricular systole, another current of less-fresh blood is simultaneously forced from the right ventricle, through the ductus arteriosus, also into the aorta, but beyond that portion which gives off the vessels to the upper part of the body. Here, then, we have with each systole two currents of blood forced into the aorta and meeting at a point (approximately) between the



origin of the left subclavian artery and the entrance of the ductus arteriosus.<sup>1</sup> The effect of the meeting of these two currents must be that each recoils in the direction whence it came, with the result that the fresher blood is more effectually forced to the head and upper extremities.

If we seek the cause which maintains this peculiar and perfect arrangement, we find it in the fact that the pressure is sufficiently greater in the right auricle than in the left to keep the foramen ovale constantly open.

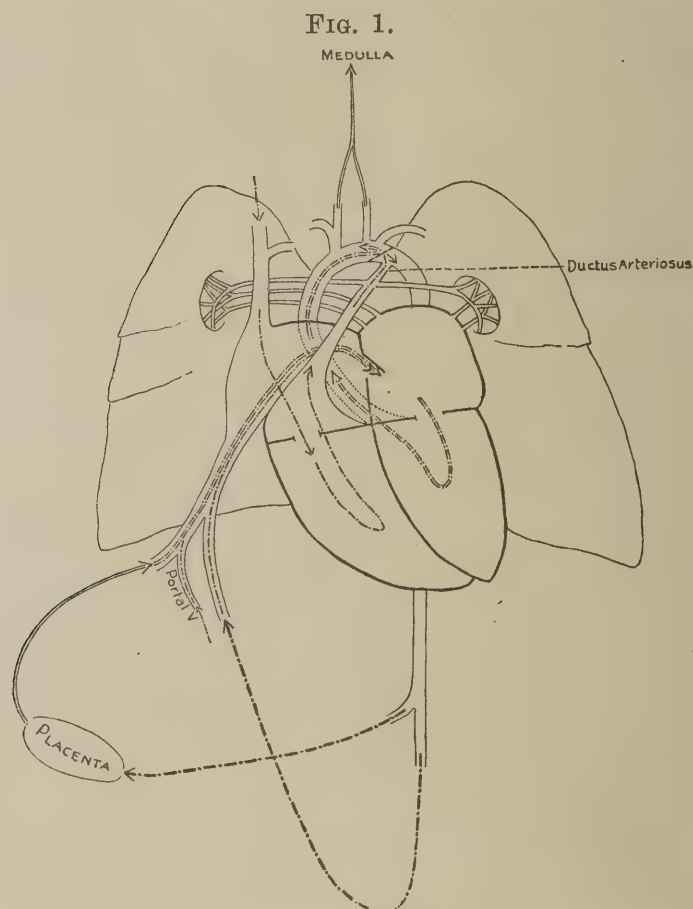


Diagram representing the foetal circulation intact, with lungs not yet expanded.

This is easily understood when we compare the quantities of blood that enter the two auricles. The right receives the return current from the placenta plus the return blood from the whole body, while the left receives the return current from the placenta plus the return blood from the lower part of the body only. To state it differently, the same volume of blood passes through the right auricle twice before leaving the body, while the left auricle receives a second time only that part of the return blood which mixes with the current of fresh blood in its course from the placenta.

With the force so distributed the foramen ovale must remain open.

While the pressure within the two auricles differs greatly, the pressure within the ventricles is probably about equal; but one current of blood enters each, and the force encountered by the volume of blood propelled

<sup>1</sup> Designated in Fig. 1 by the line across the aorta.

simultaneously by each is equalized by the two currents meeting almost immediately after leaving the heart.

Each ventricle propels approximately the same volume of blood, which meets with an equalized resistance; hence we might expect each to possess approximately the same power. Accordingly, in examining a number of hearts of still-born children at or nearly at term, the writer found the walls of both ventricles to be pretty uniformly equal in thickness.

The pulmonary vessels at this time convey only sufficient blood to supply nourishment to the lungs.

While the conditions pictured in Fig. 1 are persistent during foetal life and up to the time when respiration is established, it must be noted that with the diminution in size of the Eustachian valve and other slight

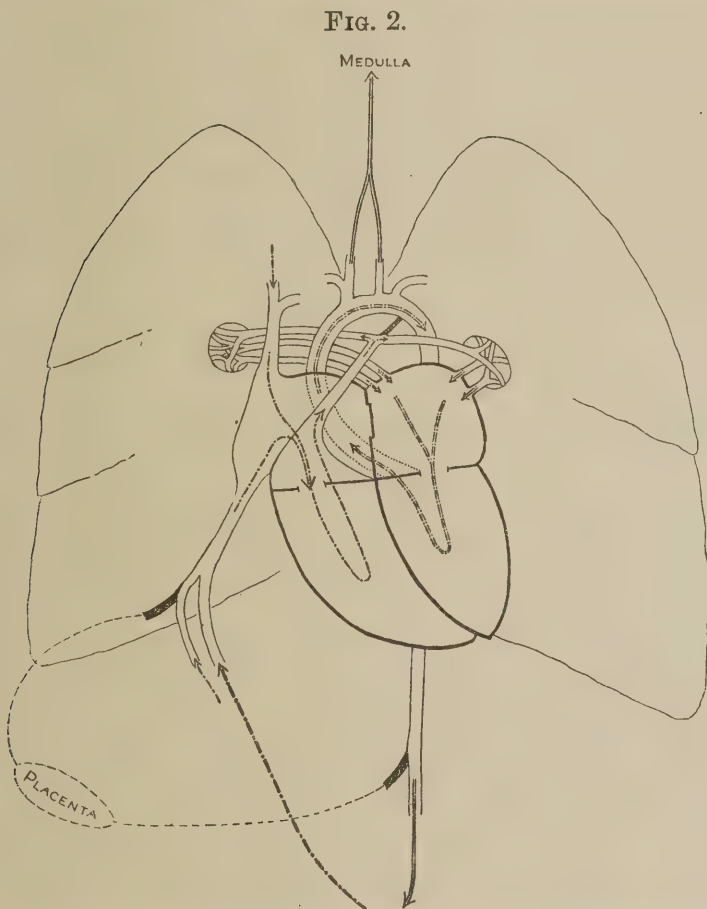


Diagram representing the altered circulation, with lungs expanded and placental circulation cut off.

changes that occur towards the end of gestation, it is believed that a slight admixture of currents is permitted whereby more fresh blood is sent to the lower part of the body.

We now come to study the changes which the circulatory apparatus and the blood-currents undergo in adaptation to the new conditions of existence which are met at birth.

In Fig. 2 these changes which constitute our second and third groups are shown to have occurred.

We have seen that the patency of the foramen ovale depends upon the



pressure being greater in the right auricle than in the left. Very plainly then a reversal of pressure is required to effect closure of the valve which guards the orifice upon the left side.

When and how is this accomplished? At once, by the establishment of respiration. With the first deep inspiration a considerable volume of blood is aspirated from the right side of the heart by being drawn into the expanding lungs, and by expiration the same volume of blood is discharged into the left auricle through the pulmonary veins. Thus the balance of pressure is transferred from the right auricle to the left.

Let us study these changes more closely. With the relations of the different structures clearly before us, we see that the following must be the natural sequence of changes :

#### A.—WITH EXPANSION OF THE LUNGS.

1. The pressure in the right ventricle and auricle is lessened by aspiration of a large volume of blood into the lungs.

2. The pressure in the aorta is lessened because a large volume of blood is diverted from its course through the ductus arteriosus ; therefore—

3. The volume of the return current to the right auricle from the placenta is diminished.

#### B.—WITH CONTRACTION OF THE LUNGS.

1. The large volume of aërated blood is discharged into the left auricle ; therefore—

2. The pressure in the left auricle is increased.

Under these conditions the foramen ovale must close, and with the continuance of normal respiratory movements must remain closed. However, if from any cause the relative pressure in the two auricles is again reversed, the foramen will permit the passage of venous blood from the right auricle. This is probably a cause of the cyanosis in atelectasis, where the obstruction to the pulmonary circulation tends to increase the pressure in the right side of the heart and diminish it in the left.

The changes in the blood-currents consist of diversion to the lungs of the current which had before passed chiefly into the aorta through the ductus arteriosus, its return to the left auricle through the pulmonary veins, and the stoppage of the inter-auricular current.

It may here be asked, What is the effect, upon the foetal circulation, of cutting off the placental circulation by ligation or otherwise? The only immediate effect, the lungs being as yet unexpanded, is to increase the pressure in the aorta (which pressure would be about equally appreciated by both ventricles) and to lessen the pressure in both auricles. The relative pressure in the two auricles would therefore not be materially altered. The secondary effect, that of causing stimulation of the respiratory centre, has been referred to.

The third group of changes includes the closure of the ductus arteriosus

and the umbilical vessels. The ductus arteriosus closes with the establishment of respiration, although the vessel remains pervious for some time. The umbilical vessels, unless previously ligated, close with the separation of the placenta from its site.

Now, if we have succeeded in establishing our points, first, that the circulatory changes result from the operation of purely physical forces; and, second, that these forces depend upon expansion and contraction of the lungs, we are prepared to deduce principles for the treatment of asphyxia at birth.

It has already been emphasized that the condition which we have to meet in asphyxia is one of paralysis of the respiratory centre, in some degree, from want of nourishing blood. We have also seen that the foetal circulation is so arranged as to permit the fresh blood to be carried to the medulla as quickly as possible. The altered circulation also provides for the same object. But it is after the foetal circulation has been broken, and before the altered circulation has been established, that the respiratory centre suffers, and it must suffer until the alteration has occurred; and the practical point is that the alteration cannot occur without respiration, which sets in order the forces to accomplish it. Therefore we should imitate nature in our efforts and seek to establish respiration as the first essential change, without which no other can occur.

It is not necessary here to distinguish particularly between livid and pale asphyxia, except to remind that pale asphyxia is of graver degree and requires the greatest promptness in treatment.

While it is not within the purpose of this essay to describe in detail the methods of exciting respiratory movements, a few general considerations are pertinent.

There are three recognized means of aiding the establishment of respiration :

1. By cutaneous impressions to stimulate the respiratory centre through the medium of the cutaneous sensory nerves.
2. By artificial respiration.
3. By insufflation.

In cases of slight degree, where the respiratory centre is still responsive to powerful cutaneous impressions, friction along the spine, slapping, pinching, the alternate hot and cold bath or douche, or other like means will probably be sufficient.

In the cases of more profound asphyxia, with the respiratory and reflex centres paralyzed to a degree which renders them incapable of response, the child is virtually dead, with the exception of the heart, which continues to pulsate, innervated by its cardiac ganglia, after all other signs of life have disappeared. In these cases cutaneous stimulation is utterly useless at the beginning. Here oxygenated blood must be speedily sent to the medulla by some means or life will terminate. Ordinary methods of performing artificial respiration may be effectual in some cases, but the weight of opin-



ion seems to favor means that will more decidedly and completely expand the lungs.

The methods that fulfil this requirement are chiefly Schultze's,<sup>1</sup> and that of direct insufflation by aid of a catheter or mouth to mouth. By some such method the infant must be compelled to breathe until the function of the respiratory centre is restored by the fresh blood that is thus forced to circulate to it.

Of the two methods direct insufflation has the advantage of being applicable under all circumstances, and especially where it is not desirable to cut the cord. Schultze's method requires the child to be separated from the mother, but it has the advantages of supplying absolute atmospheric air, and of favoring, during expiration, the gravitation of blood towards the medulla and of inspired fluids from the air-passages. The two latter are very important points in every case, for the inspired fluids should always be removed as quickly as possible, and the gravitation of blood towards the medulla, with the child's body partially or wholly inverted, will be a valuable aid. Cases are recorded in which inversion of the body alone was effectual, even in pale asphyxia.<sup>2</sup>

Schultze<sup>3</sup> claims for his method that by it children so profoundly asphyxiated that they cannot be saved by insufflation are oftentimes resuscitated.

It is a rule that should be followed, that no child that has the appearance of having been alive previous to the birth should be pronounced dead without first making faithful and prolonged efforts for its resuscitation; and this even if the cardiac pulsations are not at first perceptible. There are upon record numerous cases which were saved, although the heart had apparently ceased to pulsate.<sup>4</sup>

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## *INSANITY FOLLOWING THE KEELY TREATMENT FOR INEBRIETY.*

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It is only intended in this paper to present notes concerning three cases of insanity in which, apparently, the exciting cause was treatment at the Keely Institute, at Dwight, Illinois, and to make some observations on

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<sup>1</sup> For a full description of Schultze's method, see Lusk's *Midwifery*, 1883, p. 595, or *American Journal of the Medical Sciences*, vol. xci., 1886, p. 460.

<sup>2</sup> Noble, *American Journal of Obstetrics*, vol. xix., 1886, p. 349.

<sup>3</sup> *Centralblatt für Gynäkologie*, February 8, 1890, p. 93.

<sup>4</sup> For a remarkable case see Keating's *Cyclopædia of the Diseases of Children*, vol. i. p. 249.

the Keely method, as well as on other Keely patients who came under my care as insane, but whose insanity was not to any great extent due to the Keely treatment; but so far as insanity in general resulting from the Keely treatment of inebriety is concerned, this is a subject upon which I do not now endeavor to treat, although it would appear that a large number of such cases have occurred, and would be worthy of collection and scientific study.

Whether we regard drunkenness as a disease, a habit, a vice, or a combination of the three, constantly varying with the individual, or whether we only look upon alcohol (as some ultra-progressive minds have done) as simply a convenient means of exterminating those individuals and races not fit to survive, we can but find a certain interest in the phenomena of the Keely cure. At the same time it is difficult for a physician whose mind and life are regulated by the ethical standard we inherited from our fathers to approach the subject without prejudice, yet this it will be my effort to do.

This remarkable cure seems to have several elements which combine to produce the striking results which all have noted. These elements may be regarded as—

1. The medication, hypodermatic and internal.

2. Influences producing a powerful mental and moral impression upon the patient.

These latter may be subdivided into the means employed to profoundly influence and impress the patient at the various "institutes," and the advertising which the system receives by one agency and another throughout the land. These all have their importance, but the second yields nothing to the other in the part which it plays, and I will briefly consider these at the close of my paper.

Coming now to the details of the cases in which insanity has been associated with the Keely treatment, I would say that in all there have come under my notice, as superintendent of the State insane hospital at Kankakee, eight patients who were committed more or less directly after residence at the institute at Dwight, Illinois. These cases, with two exceptions, were all received between September, 1891, and February, 1892, and the following is a brief outline of such cases:

CASE I.—Case of inebriety, alcohol, morphine, and cocaine. Received at Kankakee in March, 1890. Treated at Dwight two or three years previously and relapsed within a few months thereafter into habits of drink and morphine, followed by an attack of insanity. Was then treated in an asylum and recovered. Patient never insane before going to Dwight. No hereditary insanity. After leaving Dwight started on a sea-voyage and commenced drinking on ship. Discharged recovered from this second attack of insanity.

CASE II.—Morphine habit. Admitted to Kankakee in 1890, after "home treatment" from Dwight Institute in August, 1890. Insanity apparently antedated the Keely treatment. No insanity in family. Did not resume morphine habit. Still in the insane hospital.

CASE III.—Alcohol habit. Admitted at Kankakee in September, 1891, after



taking, a few weeks previously, a course of treatment at Dwight. Attack of melancholia shortly after leaving Dwight, in consequence of which patient was admitted to hospital. Patient commenced to drink after leaving Dwight. Discharged from hospital at Kankakee as recovered mentally. (See further notes of this case.)

CASE IV.—Case of alcohol, cocaine, and morphine habits. Received at Kankakee in October, 1891. Treated at Dwight some years previously. Relapsed, and had been refused admission at Dwight a second time. A month or two before admission at Kankakee was in an institute in Indiana, where patient became wildly insane, apparently in consequence of treatment received there. No direct heredity. Maternal uncle insane. Discharged recovered mentally. Patient still drinks.

CASE V.—Alcohol and morphine habit. Admitted at Kankakee in November, 1891. At Dwight in preceding August and September. Not insane before going to Dwight. Insane delusions appear to have developed while there. No heredity of insanity known. Did not resume liquor or morphine after leaving. Still in insane hospital. (See further notes of this case.)

CASE VI.—(Same as patient No. 1). Alcohol, morphine, and cocaine habits. Date of admission at Kankakee January, 1892. Had applied the year before for admission to Dwight a second time, but was refused. Had taken Keely's "home treatment" repeatedly after leaving Kankakee, and had been in Hargreave's Institute, the "W. C. T. A. Sanitarium." Not insane before going to Dwight. No heredity. Discharged recovered from this third attack of insanity.

CASE VII.—Alcohol habit, complicated to some extent with morphine. Admitted in January, 1892. Had taken about two months' treatment at Dwight. Insanity developed while there. No heredity. Still in hospital. Did not resume habits after leaving Dwight. (See further notes of this case.)

CASE VIII.—Alcohol habit. Admitted in February, 1892, leaving Dwight one month before after regulation course of treatment, and immediately relapsed into drinking habits. No previous insanity. No heredity. Still in hospital. This patient has been subject to epilepsy at long intervals.

In the above eight cases only seven individuals are represented, as the same person admitted twice makes two cases. Of these only two are non-complicated cases of drink habit, the others being all more or less subjects of morphine, cocaine, etc. There are two of the cases in which the insanity would appear to have developed at Dwight, and one in which melancholia seemed to follow immediately the treatment there. Of these three cases I will present a somewhat more detailed statement. In two of these three cases, morphine, as well as alcohol, had been used to excess for protracted periods, and these two cases present quite a similar form of mania with hallucinations of the auditory type, while the patient whose insanity resulted from alcohol alone was affected with decidedly different psychosis, namely, simple melancholia. In all these cases there was, of course, a profoundly disturbed condition of the brain and nervous system, without reference to the Keely treatment.

I will now describe the three cases of insanity in which the exciting cause was apparently the Keely treatment.

FIRST (Case VII., above).—This patient, a single man, aged thirty-seven, was a heavy user of alcohol from his eighteenth year, and lately, for one and one-half years past, had taken up the use of morphine, using at times three and one-half

grains hypodermically. This he used largely when awakening in the morning after a debauch in such a shaky condition as to be unable to go on without additional stimulation. He was a physician. His parents were cousins, and one brother was an inebriate. At the time of his admission to Kankakee his nutrition was fair, tongue coated, appetite fair, bowels regular. Sleep poor, except under the influence of hypnotics. Eyesight good; pupils equal. Hearing good, except for hallucinations. Sensibility normal. Tendon reflexes exaggerated on the right side. Shape of chest normal. Lungs and heart apparently normal. Respiration regular. Pulse regular,—84.

The patient spent about two months at the Keely Institute, and on coming home was found to be affected with delusions. He thought he heard voices, and believed people were talking about him. He was inclined to think himself insulted, and threatened violence at times in consequence. His auditory hallucination produced alarm among his friends, and he was committed to the insane hospital three weeks after leaving Dwight. After a few weeks at the hospital the active hallucinations wore off, and patient's mind became clear on all ordinary subjects, but grandiose delusions remained. Patient thought he would run for governor, wrote poetry, and prepared an inaugural address. Outside of his delusions his mind and memory were clear, and he described intelligently all that had occurred. He stated that he had been dosed heavily with drugs at Dwight, and described accurately the symptoms of atropine intoxication as being present most of the time while at Dwight, being familiar with these things as a physician. He is still in the hospital and rational, except for exaggerated ideas and frequent inconsistent changes of opinion. His appetite for stimulants is still uncontrollable, as shown by attempts to secure liquor. He is steadily improving, mentally and physically. [NOTE.—This patient, with another Keely graduate, was allowed to go to the city on condition of not entering any saloon. When supposing themselves to be entirely unobserved, they were seen to enter one of those resorts by the attendant, and commenced by taking lemonade, but ended by calling for strong liquor. It was found necessary at once to recall the privileges which had been accorded them.]

SECOND (Case V., above).—Male, aged thirty-nine, single, salesman. No hereditary insanity. Addicted to the use of alcohol and morphine for several years. On admission to Kankakee nutrition fair, tongue clean, appetite good, bowels constipated, sleep poor, sight good, pupils normal, hearing impaired and imaginary "voices" present, skin cool, muscular system and motility good, heart, lungs, and pulse normal. Respiration regular.

This patient had scarlet fever when about four years old, in a very serious form, which permanently affected his hearing. On account of his sickness and infirmity of hearing he was very much petted and indulged, and never subjected to the average amount of discipline and control. Patient was very rational on all subjects except his hallucinations of hearing. He stated that he went to Dwight in August, 1891. He had at that time been taking morphine for at least ten years, and used liquor in excess from the age of eighteen, in his early years having frequent sprees, and later drinking steadily, but not often to the extent of drunkenness.

When first coming under the effect of the medicine at Dwight, he noticed that his vision was much affected, and there was great dryness of the throat. After being there about three weeks he began to feel that every one was looking at him with suspicion. He believed that he was still accused of taking morphine on the sly, and spoke to the doctor about it, saying that it was an unjust suspicion. The doctor, however, assured him that he did not believe he was taking morphine. The time he had expected to remain at Dwight passed by and he did not feel any better, but rather worse. His head troubled him, and he neglected to go to the "shot tower" for his injection. The doctor came to see about it, and insisted that he should take the medicine regularly. He remained there about five weeks, and the doctor then



sent him back to Chicago with an attendant. He reported to his friends in Chicago, and was still under the impression that they believed he was not giving up his bad habits. He endeavored to assure them that he was all right, and they insisted they had no suspicion of him, but he could not believe them. He went to a hotel by the advice of his friends and stayed about three days, during which time he took little or no nourishment. He slept scarcely at all during the three days. His head pained him intensely. He kept ice on his head a good deal of the time. In his room in the hotel it seemed to him they were blowing "insect-powder" into his room. His mind was abnormally active, and things came to him which he had not thought of for twenty years.

His exhausted condition increased, and his friends, finding the state he was in, sent him to a private institution for about three weeks. He had all the time heard strange noises and a feeling as if images came to him in some unexplained way. Shortly after going to the private hospital, this took the form of distinct hallucinatory voices, which accused him of every imaginable crime, and under the effect of these voices he grew worse, and it was decided to send him to the State insane hospital. He was admitted to Kankakee in November, 1891. On admission patient complained of headache, and desired to have hypodermic injections of morphine. Very restless, walking up and down, tormented by hallucinations. Thinks he hears voices accusing him of crimes and using disgusting language. Much depressed physically. June, 1892, still in hospital. Improving steadily, and now rational about everything except the "voices," which he still hears, but now thinks it is his own voice.

THIRD (Case III., above).—Alcohol habit. Male, aged thirty-three, single, salesman. Had been in Washingtonian Home, Chicago. In good physical condition. This patient's insanity was, in its form and causation, different from the two preceding cases. The patient went to the Keely Institute in a somewhat sceptical mood, and passed through the usual course of treatment there, which, he stated, disturbed his vision so that he was not able to see or read correctly. Great dryness of the throat and tongue were produced, and depression, dizziness, and loss of memory. The depression and despondency continued after leaving Dwight, and he commenced to drink again. This patient became rational in a short time after admission to the hospital, and described his symptoms very intelligently. He recovered and went home entirely well after five months' treatment.

Of interest in this connection, and as bearing upon the nature of the treatment administered at Dwight, the statements concerning three other patients may be added here, whose insanity did not seem to be due to treatment at Dwight, but followed quite directly the treatment of other similar institutes, these patients having recovered and gone home in two cases, and the third being now convalescent. These three cases were as follows:

CASE IV. (see above).—This patient had had extensive experience in a large number of institutions in different parts of the country for the treatment of inebriates, and had himself at times received, treated, and cured such patients, and was very friendly to Dr. Keely. He was one of his early cases, ten or more years ago, and had failed of benefit then and been treated by Keely in the interval once or twice. He was familiar with the Keely methods, and claimed to know that atropine was one of the principal ingredients used hypodermically. He described the typical dilatation of the pupils, disordered vision, dryness of throat, etc. Having been refused by Keely any further treatment, he went to another habit-treating institution, in Indiana, and after a short time there became frenzied and unable to con-

trol himself, apparently was given poisonous doses of atropine, and became wild and furious in his conduct; but he may have continued morphine secretly as well. When his friends found what state he was in they took measures to commit him to the hospital at Kankakee, where he was admitted on October 31. On his admission he was in a state resembling acute delirious mania. Delusions of persecution, especially of being followed by persons with designs on his life, very marked. Also auditory and visual hallucinations. Speech thick and hesitating. Articulation defective. Tongue coated and foul. Sordes on gums. Constipation present. Digestion very weak. Great emaciation. It seemed as if this patient could not possibly live at the time of his admission. Under appropriate treatment, however, with nursing and feeding, he made a gradual improvement, and in six weeks was entirely rational and physically greatly improved. His improvement continued until January 25, when he left the hospital. His weight was one hundred and five pounds when admitted, and one hundred and forty-five when discharged. He conversed very rationally about his own case, which he had studied considerably.

One patient admitted at Kankakee in January, 1892, a young man, aged twenty-three, took the "dipsocura" at the institute in Chicago, managed by a former associate of Keely's, the "Woman's Christian Temperance Alliance Sanitarium." The "dipsocura" is Dr. Hargreave's improved formula of "bichloride of gold," and his circular says is given "without effecting (*sic*) the eyesight." During Hargreave's treatment the eyes of the patient became weak, head dizzy, could not read, felt numbness after injections. This patient had been for five years an increasingly heavy drinker, sometimes five days on a spree and in saloons all night. Would go home, be sick two days, and then go to work until the next spree, four or six weeks later. Was a victim of alcohol, but took up morphine while under Hargreave's treatment. Learned to use morphine from another patient whom he met when going for his daily treatment. While being treated with "dipsocura" lost the appetite for drink. Two days after treatment was completed he went down town and "took a drink to try himself,"—one of beer, and seven drinks of whiskey followed that evening. Next morning continued drinking. Not long after went to a saloon, and, having a morphine powder which he was trying to take in some whiskey, was assisted by the bartender, who saw how shaky his hand was. The bartender, thinking the powder was quinine, put in such a quantity that the poisonous effects of morphine were at once produced. Patient fell down on the street and had to be carried to the county hospital. This patient was shortly after committed to Kankakee, where he has steadily improved and shows earnest desire to reform, having left off the use of tobacco under hypnotic suggestion and voluntarily continues to abstain from it, and he is now apparently making a good recovery.

CASE I. (see above) had also, after treatment at Dwight Institute and relapse and intermittent use of Keely's "home treatment" for two or three years, employed the "dipsocura." States that while taking this cure his "heart troubled him" and pupils were dilated, and the effect was such that he could not continue it, and asked his money back. He continued to grow more and more nervous, passing into a weak and frenzied condition, in which he was brought to the insane hospital.

Now let us briefly consider the elements which enter into the Keely treatment.

*First.* As to medication, Keely maintains profound secrecy on this point, but there seems to be no doubt that ordinary well-known tonics and perhaps cathartics are combined with some narcotic or mydriatic drug, probably atropine. As to the presence of gold a doubt seems to exist, since authoritative analyses of the preparation sold from the Keely Insti-



tute have repeatedly failed to reveal it, but bichloride of gold and sodium may be present in the preparation used at Dwight. Dr. Keely states that he uses no "narcotic" in his treatment, but it seems to be incontrovertibly proved that atropine or a drug of its class is one of the chief ingredients. The numerous patients with whom I have conversed describe correctly the symptoms of atropine almost without exception.

*Second.* The moral influences (and under this head is included all that produces an effect upon the mind of the patient) are remarkable. In the first place the patient generally goes to Dwight with an earnest expectation of benefit, and the value of such an expectation is readily apparent. It places the patient in the most favorable attitude for beneficial results. An enthusiastic hope is engendered and the operation of this emotion alone may produce greater results than any drug is capable of. The powerful influence of an aroused expectation is illustrated by the facts of hypnotization, prestidigitation, and mediumistic performances, and also by the apparently miraculous results of visits to Lourdes or the laying on of hands by some individual supposed to be endowed with supernatural healing powers. Further, the intensification of this effect by bringing large numbers together with the same hope and enthusiasm is a factor that it is hardly possible to overrate.

One impressive part of Keely's plan of treatment is the remarkable freedom with which, while laboring to cure the alcohol habit with one hand, he seems to proffer the whiskey-bottle with the other; and when the patients find that they are now entirely indifferent to its contents, great is their astonishment and gratitude; but the explanation of this wonder consists in the fact that any person who is powerfully "dosed" with large doses of stimulating and narcotic drugs (as, for instance, atropine and strychnine) will for the time lose all accustomed appetite for other stimulants or narcotics. And here another important element comes in. This plying of the patient with such powerful drugs partially "paralyzes" him, mentally and physically, and this is important as a means of impressing him with the idea that some great and remarkable change is taking place in his system. He naturally believes he is being "made over" from top to toe, and that a great process of elimination is going on which when completed will make of him a new creature in all his appetites and desires. He is told his taste for liquor will disappear, that he will not care for it any more, and generally devoutly believes it. He is told perhaps that he cannot take liquor even if he should wish to,—that it will disgust him and will not remain on his stomach; and that it will disgust him is a fact, for liquor is naturally disgusting to a healthy appetite. This is even more the case with tobacco, and *habitués* of liquor and tobacco often after abstinence or sickness do lose their accustomed taste without going to Dwight.

Another marvel comes in here. It is well known that Keely patients have actually found, as predicted, that they could not swallow whiskey, or if they did, it would come up again, but the very fact of the prediction has

a great deal to do with this. It is on the same principle that the mesmerist uses in telling his subjects they are in his power; that they *must* do as he says; that, for instance, at a certain hour they will feel an impulse, which they cannot resist, to do a certain thing. The hour comes and they feel the impulse and obey it,—*if they believe what the mesmerist asserted*; but if not, the assertion has no power over them. So it is with those Keely patients who find they cannot keep whiskey on their stomachs! For it is well known there are numerous instances in which the Keely patients can and do resort to their old habits, the appetite not being removed by their treatment.

It is, of course, an important question whether there is any treatment which will remove the appetite for alcohol, and it, in my opinion, remains to be shown whether anything further than the operation of natural and well-understood causes is required to account for the undisputed fact that a large proportion of the Keely patients do lose their appetite for liquor; these natural causes being the natural distaste for liquor restored by abstinence and return to better physical health, and the fixed belief of the patient that this appetite is cured.

There is another question about the Keely system to which an answer is required by science and humanity. Dr. Keely announces that drunkenness is a disease. He makes no exceptions, if I remember rightly, to the statement that it is a disease pure and simple. If this is true the question arises why he refuses to treat patients a second time. In doing this, is he not on his own showing punishing them for their misfortune? What would be thought of any hospital or sanitarium which refused to receive a patient with pneumonia or rheumatism because he is guilty of having a second attack? It does not answer this question to say the effect on others is bad of taking back old cases, though we know the effect would necessarily be bad upon the attendance at the Keely Institute, of having the cases which have proved failures staring the new cases in the face.

Coming now to the percentage of cures, Dr. Keely claims ninety-five per cent. of cures, and the figures of the bichloride of gold clubs are even higher; but they both neglect to state, so far as I have observed, what constitutes a cure. Does a cure mean one or five years' abstinence, and do the figures given embrace all the cases treated or only those about whom information is forthcoming?

In the first place, the drink habit is not like rheumatism, paralysis, consumption, and other bodily diseases whose presence or absence can be demonstrated, though it is possible for patients to be deceived and to deceive others who are afflicted even with these, but the cure of drunkenness is a more difficult matter to ascertain. No one can follow up all of Keely's patients for months and years to see how they turn out. He cannot do this himself. Patients may be still drinking and deny it or deceive others. There are many whose paroxysms of drinking are months and even years apart, and there must be hundreds who drop out of sight entirely, especially if they relapse. Some relapses are admitted even by Dr. Keely, and yet



he announces that his remedy is "infallible," printing this word upon the label of his bottles, and, of course, if his claims are correct the percentage of cures should be one hundred per cent. And to be consistent he should claim this figure.

The department of "publicity and promotion" of the Keely enterprise is one of the most important factors in its success. A large proportion of the advertising is spontaneous wholly. It is secured gratis from the wonder and gratitude of the patients. Dr. Keely states in the *North American Review* that he has never advertised further than to allow the *Chicago Tribune* to open its columns to the Keely patients and their friends. This is a very moderate statement of the part the *Tribune* has taken in the matter. There is a weekly journal published by the Bichloride of Gold Publishing Company, and there are various tracts, narratives, circulars, etc., which are extensively circulated. It is fair to suppose that the missionary and commercial spirit are both interested in these various publications, but the advertising may be regarded as a venial fault *if* the claims set up are true.

The question of medical ethics and the unquestionable violation of the code both as to secrecy of the preparation and as to advertising by Dr. Keely are things entirely apart from the question of the value of his treatment, and that his treatment has been of value to thousands one may be glad to admit; but there remains the question as to the truthfulness of his claims which certainly remains to be established.

It is scarcely possible to overrate the importance of the part which concealment plays in the Keely methods.

The "secret" of Keely, if it were known, would, it seems probable, prove to contain nothing essentially new. One is reminded in this connection of the "Keely Motor." The inventor of the latter claims to have discovered a new mechanical principle in physics as radically important as "perpetual motion," which he refuses to divulge and from his knowledge of which he makes a profitable speculation. The Keely of Dwight is doing the same thing in medicine. There is a kinship of spirit if not of blood in the two. The Keely of Dwight, however, has a richer field. It embraces the whole world. Drunkenness is nearly as universal as "the weather." It is as difficult, however, for the trained physician to believe that Keely has made a momentous discovery of some important, hitherto unknown, principle, as it is for a trained astronomer to believe that Wiggins has a deeper knowledge of the universe than all the science of all the schools embraces.

It may be that Keely is in the right. It will presently become clear whether imposition plays any part in the Keely methods. This movement, like all others, will be known "by its permanent fruits."

If it be true that there is something essentially new in Keely's methods, a motive for concealing them becomes at once apparent on the supposition that he wishes to derive personal advantage from his invention, but if he wishes to derive personal advantage and there is nothing new or important

in his system, the motive for concealment is equally apparent and the personal interest is the same in either case.

It is a fact that ignorant and unscrupulous persons are to-day imitating his treatment as far as in their power everywhere, and probably the impositions are greater than they would be if the "secrets" were divulged, while if the facts were made known and there were value in them skilful and scientific men could universally make use of them for the benefit of all.

Keely compares his secret to that of Koch, who was supposed to have discovered a remedy for consumption, but the parallel does not hold good, for while Koch only kept his methods secret until he could perfect them (as he believed), Keely claims that perfection has already been attained, and if so, he is inexcusable, from the stand-point of science and humanity and medical ethics, if he does not place his methods within the reach of all competent persons. If these methods should be misunderstood or abused by ignorant or unscrupulous persons, that is something to be risked in all such cases. Dr. Keely, in a lecture delivered to his patients at Dwight in March, 1892 (see *Chicago Tribune*), states that he is not what is called a Christian, but he does believe in special providences, and believes that his "discovery" is a "special providence." This is perhaps the first instance on record of a special providence offering its services for cash. "Verily he has his reward:" the income of a millionaire is his, and he has a certain claim to the fame and gratitude he enjoys; even though he be a medical Barnum who well understands how well the average mortal likes to be humbugged.

One final word should be spoken for the many physicians, of whom I am one, who have, although not approving of the Keely methods nor believing his claims to be wholly true, utilized his power for good. There are many who have not hesitated to send patients to Dwight, believing that, all things considered, it was better they should go there and that at least temporary and possibly permanent benefit might be obtained through the agencies which Keely happens to have at command.

Since I became satisfied that there are cases in which insanity may be developed by the Keely treatment I have given no further advice to patients to take it, without being satisfied there was no risk of insanity, but still believe there are large numbers of patients for whom it is perfectly safe, so far as insanity is concerned, and undoubtedly many of those who have gone insane after the Keely treatment would have as readily gone insane without it.

In closing, I will ask the question whether the admitted facts of the Keely cure can be accounted for on already-known principles, or whether it is necessary to suppose that Keely has made a discovery as great as or greater than any in the annals of medicine. To my own mind the answer is not doubtful. It seems more probable that all the facts can be accounted for by known agencies and laws than that anything epoch-making has been created by Keely. Many have been the so-called sovereign cures and



infallible remedies for human ills which have brilliantly dawned, risen to high favor, and called forth a furor of enthusiasm, only to collapse and disappear at last, because their claims were not founded in verity; and Keely's recent appearance in the pulpit of Talmadge and engaging of Francis Murphy to assist him look like an effort to prop up a cause sensible of its weakness.

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### *STRANGULATED HERNIA.*<sup>1</sup>

BY W. B. DE GARMO, M.D.,

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IT is rather remarkable, in view of the great advance in modern surgery, that the death-rate from strangulated hernia should remain almost as great as in former times, and it goes to prove pretty conclusively that there is something to be wished for in the general understanding or management of these cases. Notwithstanding the mass of literature that has been devoted to this subject, and the fact that its importance has been fully recognized from the earliest times to the present, strangulated hernia remains to-day, as in years gone by, the dread of the average practitioner of medicine. Physicians who ordinarily act promptly and in the best interest of their patient hesitate over a strangulated hernia, trying first one thing and then another, "frittering" away valuable time, and thereby sacrificing a human life. This hesitation and fear, which results in *not* doing the right thing at the right time, doubtless has its origin, first, in the dread of former years of touching anything relating to the peritoneal cavity, and, second, to the manner in which most of us were taught the anatomy of the parts. In the dissecting-room we may lift the parts layer by layer, numbering and naming each in turn, because here we are studying the structure of the entire abdominal wall. At the operating-table our object is an entirely different one; we have no occasion here to count anatomical layers, and the man who attempts it will only add to the confusion already caused by the changed relations and condition of the parts. He is searching for a constricting band, and usually finds it after cutting through the skin and subcutaneous fascia, at the outer aspect of the hernial opening. He must be able to recognize the muscular or fibrous structure of the abdominal wall when he reaches it or the peritoneal covering of the tumor, but it requires no greater knowledge of anatomy to do this than should be possessed by every practitioner in the land.

It is with the hope of helping to remove this fear, and especially this

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<sup>1</sup> Read, in part, before the Section of Surgery and Anatomy of the American Medical Association, Detroit, June 7, 1892.

fatal tendency to delay on the part of medical men, more than with the idea of presenting anything particularly new, that this subject is presented, and an attempt is made to emphasize in as concise a manner as possible a few cardinal points in the management of strangulated hernia.

With the physician who first sees the case rests the burden of responsibility, and if incompetent to carry out means of relief himself, he should realize that in not promptly placing the patient in the hands of a man who can apply them, he is almost criminally indifferent to the welfare and safety of the sufferer.

These are cases where delay means complication and probable death of the patient. They pass rapidly from the most simple of surgical cases, which require no great skill to relieve, to those of the most complex nature, where the most skilful and experienced surgeon may fail in his attempts to save the patient's life. It is not possible to speak too frequently or too strongly upon the great importance of affording these sufferers immediate protection from impending danger.

All hospital records give us statistics of a frightful mortality following this accident. To what is this mortality rate due? To the necessarily fatal character of the difficulty? Most emphatically no to the latter question, but almost wholly to delay. It may not be possible to change this rate in hospital practice where from the very nature of things the cases are seen late, but there is no possible excuse for its continuance in private practice, where the patient is almost always seen at an early stage of the trouble.

It is true that occasionally we will meet with cases where diagnosis will be so uncertain as to make some hesitation justifiable, but the tendency of modern surgery is to show that the line of safety lies on the side of early operation even in many doubtful cases.

When we are called to a patient who has abdominal pain, vomiting, and distress, and who has a tumor in one of the regions subject to hernia, with perhaps a history of a swelling, formerly reducible, but not now so, there is no difficulty in making a diagnosis of strangulated hernia. We do not always have so clear a picture as this. Local pain, even pain in any part of the abdomen, is sometimes entirely wanting.

Three years since I was called in consultation to operate on a young man attacked five days previously, where four different physicians had been in attendance, and only one had suggested strangulated hernia, owing to the fact that abdominal pain had been absent. When I operated general peritonitis was well established as the result of a knuckle of gut constricted at the external ring, and still I was informed that there had been little pain. Here was a young man with a history of hernia, suddenly attacked by extreme depression amounting almost to collapse, with vomiting, and with an irreducible swelling in the scrotum, and still his life was sacrificed while the doctors wrangled over the question whether it was an inflamed piece of omentum, an orchitis, or a strangulated hernia.

Pain at the point of constriction in many cases is absent, but general



abdominal distress or "colicky" pain in the region of the navel less commonly so; general distress and the anxious expression of the face should in themselves be sufficient to tell of the serious character of the case and the need of prompt action, especially when we have the added evidence of a hard and irreducible tumor. All of these symptoms are masked by the hypodermic use of morphine, which is usually the first remedy applied by the attending physician, and many a sufferer from strangulated hernia has been sacrificed by the use of the hypodermic syringe. I cannot emphasize this danger too strongly. If opiates are used, do not allow them to deceive you into inactivity. The pathological changes are rapidly going forward. Your patient is on an express train whose destination is death, and it is travelling with frightful rapidity.

I look upon shock, or collapse, as one of the most important symptoms which we ever see in strangulated hernia, and when present it should cause us to act with decision and promptitude. Many cases of death have been recorded as due to the shock consequent upon operation, which in fact were due to the disease, and to the delay in relieving it. This should serve as a lesson, that we must not allow these patients time to fall into this condition of profound collapse. Intestinal obstruction as a symptom has of course an important bearing upon some cases of a mild type, but this does not justify the delay which is in many instances caused by trying to ascertain, by the aid of enema or cathartics, whether such a state of affairs really does exist.

#### NON-SURGICAL TREATMENT.

In considering non-surgical measures for the relief of the affection under discussion, I will first make a brief review of its strictly medical treatment. Those who follow the literature of the subject for the first time will be surprised both at the number of remedies and at the confidence with which they are put forward. One would almost think that the surgical treatment of this trouble would no longer be necessary, did we not observe at the same time that the death-rate keeps as high as ever. There is no doubt in my own mind that the medical treatment of these cases does far more harm than good, and that could all drugs be abandoned and the subject treated as a purely surgical one, many lives would thereby be saved. Because a case that has been injected by atropia, morphia, or hyoscyamine has afterwards been reduced, this is no evidence that it was the effect of the drug. Those who operate upon these cases can produce records of an equal or larger number who, through having tried these vaunted remedies, have lost valuable time, which meant death to the patient.

Muscular spasm as a factor in the production of strangulated hernia, and as something that must be overcome in its treatment, no longer holds a prominent place in the surgical mind, and the sooner it is banished from the minds of medical men the better it will be for those who suffer. When the entire profession realize that it is as purely a mechanical difficulty as is a piece of beefsteak lodged in the throat of a choking man,

relief will more promptly be accorded those who are afflicted. Delicate and vascular parts are forced out through an opening composed of hard non-elastic fibrous tissue. At first the constriction may be only sufficient to retard the return of venous blood. The resistance of the arteries being greater, the blood is still pumped freely into the parts, while its return by the veins is obstructed, congestion results, and the constriction tightens until all circulation is shut off, and death of the part results. With this state of affairs existing why give hyoscyamus, atropia, chloral hydrate, or even opiates, except to alleviate the sufferings of the patient while making preparations to do something more rational? Why not do the only right thing at once?—that is, cut the constricting band that is doing all of the harm.

#### EXTERNAL APPLICATIONS.

I shall not stop to discuss the many external applications that have been credited with great power in reducing strangulated hernia. Heat, cold, poultices, croton oil, and various liniments have all had their advocates, and to faith in each some life has been sacrificed. Evidence is strong, however, in favor of the local application of sulphuric ether. Finkelstein claims to have reduced fifty-four out of fifty-eight cases by this means alone. The hips are elevated, the parts exposed to the air, and well anointed with sweet oil, then about a tablespoonful of ether is poured over the tumor every ten or fifteen minutes. It is supposed that the intense cold produced by rapid evaporation acts not only upon the engorged blood-vessels, reducing their size, but upon the bowel itself, increasing peristaltic action. I believe this to be safer and more efficient than taxis in the hands of the inexperienced. I should feel regarding this, as with the use of ice, that it should only be used in the earlier stages, before the vitality of the part has been impaired, and that it should not be continued over a great period of time.

#### TAXIS.

Let us now consider "taxis," which I shall classify under the non-surgical means of affording relief. Dunglison gives the definition of this word as "the operation of reducing a hernial tumor by the continued pressure of the hand;" but I have found that the interpretation of the term by the profession at large may be anything from the most gentle manipulation to the mauling or pommelling of the tumor, or even of putting the patient on the floor and jumping on him, as had actually happened to a man who came under my care a few years ago.

In the manipulations known by the term "taxis" we have a power for good or a power for great evil, and I regret to say that as ordinarily used the one almost counterbalances the other. None but the most gentle manipulation should ever be used upon a strangulated gut, or even an incarcerated piece of omentum. This should be done mostly before the patient is etherized. The temptation to resort to "brute force" is too great when



the patient is insensible to pain. It happens too many times that the operator is called in only after several physicians have in turn attempted the reduction of the hernia. If, as probably will be the case, the patient dies, the operation or perhaps the operator is credited with causing the death.

I desire to give here a method of reducing hernia that has been followed by me for many years. I claim no special originality, but do claim and know that it is not generally used. Try at the outset to assure your patient that you are not going to add to his torture, and confirm this in his mind by handling the tumor with the greatest gentleness. By this you will secure his co-operation, instead of unconscious resistance. Place him upon a table with the hips well elevated instead of working over a soft and yielding bed. An ordinary kitchen-table with the legs at one end elevated six or eight inches answers every purpose, and is obtainable in almost every house.

When the patient is in place, first gently crowd the entire abdominal contents away from the lower abdomen towards the chest, then work the fingers of one hand around the neck of the tumor where it issues from the abdomen, holding its bulk in the palm of the hand, if possible, and, instead of trying to push this tumor back into the abdomen, *try to draw it farther down*. Now with the other hand grasp the canal and its contents (if inguinal hernia) gently but firmly between the thumb and fingers, and while making *traction and compression* with the hand that is holding the tumor, manipulate the canal with a "kneading" motion. This can all be done without adding to the patient's pain to any extent, and it will succeed when more rude handling fails.

When you push upward upon a strangulated hernia, usually you carry it up over the edge of the ring upon the abdominal wall, and accomplish nothing more. In the method suggested, by *traction* you lengthen out the mass that is blockading the canal, favoring the effect which you afterwards produce by *compression*,—i.e., the partial emptying of engorged blood-vessels, the displacement of imprisoned gases and fluids. This is further aided by the action of the fingers upon the canal, which tend to work the bowel free at the point of constriction.

This method applies with slight modification to any form of hernia with which we may meet. In enormous inguinal or umbilical hernia the pure rubber bandage may be called to our aid in making compression. In femoral hernia we have a very short canal to act upon, and I have for this reason modified my manipulations in the following particulars. The hand for *traction and compression* is used as before described, the tumor being drawn in a line at right angles with or directly away from the leg. With the fingers of the other hand the neck of the tumor is "kneaded," and from time to time the abdominal wall immediately above the hernial opening is gently but firmly pressed deeply into the pelvic cavity, by the ends of the fingers carried just over the brim of the pubes. This pressure, deep into

the pelvic cavity, displaces the viscera in the immediate vicinity of the internal hernial opening, and doubtless causes some traction upon the bowel from within.

I can recommend these methods of reducing hernia with every confidence that those who try them will find them more satisfactory than the usual way of applying taxis.

#### ANÆSTHETICS.

I shall mention only one more article under the head of non-surgical treatment, and that is the use of anæsthetics, purely as a means of aiding in the reduction of hernia. Here again we are using a two-edged sword. I have not hesitated to place myself squarely on record as having no faith in the causative action of muscular spasm, and this means that ether merely allows us to use a force that we would not dare use during the consciousness of the patient. One point in its favor I am willing to admit, it does away with the unintentional resistance on the part of the patient. I believe that an anæsthetic should always be used, but never by the man who is not prepared to cut down and sever the constricting band before his patient comes from under its influence, in case he fails to replace the protruding parts by moderate manipulation.

#### ASPIRATION.

Aspiration is on the line between the medical and surgical treatment of strangulated hernia. I believe that it is more frequently resorted to by the physician than by the surgeon. It is one of those vain hopes resorted to in order to avoid an operation, and one of the means that puts the patient in greater danger if not successful. The puncture of the bowel by the smallest needle, when its vitality is already at the lowest ebb, furnishes a very favorable spot for the beginning of necrotic change, and, notwithstanding the fact that they belong to a class of cases not fully published, there are enough on record to show that perforation is more likely to occur at just this point than any other.

In a few instances where the hernia is incarcerated by its enormous size rather than strangulated by a constricting band at its neck, it may by affording escape to the imprisoned gas break up the blockade. It is by no means an innocent measure to be indiscriminately applied.

#### WHEN TO OPERATE.

In former years there was some question as to just when it was justifiable to operate,—that is, in other words, just how far you were to allow your patient to go towards “death’s door” before giving him relief. I regret to say that there are still a fair number of physicians who do not feel any alarm for their patient until fecal vomiting begins, and believe that it is then quite time enough to talk of surgical measures. They fondly imagine that they are acting in the patient’s interest by trying everything else before



the knife. Then, again, there are a large number too timid to operate themselves and not conveniently situated to call a surgeon. To these two causes many lives are sacrificed every year.

I look upon delay as by far the most dangerous feature of the case. In thirty-one cases of strangulated hernia in private practice I have lost three cases, and I am sure that two of those might easily have been saved by an early operation. This good record is due to two causes: First, that I have seen the cases early; and, second, that I have never left my patient until the hernia was reduced.

#### OPERATION FOR RELIEF.

Few operations are easier to perform than those done upon a recent case of strangulated hernia before pathological changes have taken place, and few are more complicated after long delay. The point of constriction in inguinal hernia in a large majority of cases is at or near the external ring, and in femoral it is rarely found deeper than Gimbernat's ligament. In reaching these points only the most insignificant vessels are divided.

The question of opening the hernial sac should no longer be under debate by those doing aseptic surgery.

Except in the smaller herniæ, recently strangulated, safety is on the side of examining the contents of the sac, and knowing by actual inspection that they are in a fit condition to return to the abdominal cavity. We cannot without seeing estimate the amount of damage that may be done to a loop of intestine, even in a few hours. In femoral hernia I have seen the gut black after only five hours' strangulation, so complete had been the arrest of circulation. Then, again, within the sac we may have a piece of omentum which has long been outside of the abdomen, and so changed in character as to make its removal safer than would be its return within the peritoneal cavity; such hardened masses of omentum sometimes give rise to peritonitis. More than this, they are a very strong predisposing cause of the recurrence of hernia.

Amputation of omentum has long added very seriously to the mortality resulting from these operations,—first, from secondary hemorrhage, and second, from sepsis. The common method of surrounding a large piece of this fatty tissue with strong catgut, and then tying, cutting off, and reducing the stump to the abdomen, is dangerous in the extreme. Rapid absorption takes place, the ligature is loosened, and bleeding into the abdominal cavity results. Nothing short of laparotomy will save the patient. For several years it has been my habit to spread these omental masses out on the abdomen, and tie each vessel separately with small *aseptic silk*. I have placed as many as eighteen silk ligatures upon the omental stump. This method has the double advantage of ensuring safety against hemorrhage, and also of allowing the omentum to spread out in a natural manner in the interior of the abdomen, instead of being held in one mass, as a convenient wedge to redilate the canal at a later date. I sterilize my silk by boiling for twenty minutes in a carbolic solution, and it is then kept in alcohol.

The second risk, sepsis, is no longer a very great one with careful aseptic operators. This means that the operator, assistants, the patient and his surroundings, must be absolutely clean before beginning the operation.

#### COMPLICATIONS.

Among the complications met with, none are more frequent than adhesions. These are mostly between protruding omentum and the sides of the sac, and are easily broken down. If, however, they are between the bowel and the sac, great care is sometimes required to separate them. It is far better to cut out that portion of the sac adherent to the gut, and reduce it in this way, than to run any risk of tearing the intestinal coat. Before replacing the intestine it should be carefully inspected, to see that it is not twisted upon itself, or that its surfaces are not adherent. Treves has shown that those who have suffered from strangulated hernia are more liable to intestinal obstruction subsequently than other persons, on account of these adhesions lengthening out into bands that entangle the intestine. After reducing the bowel it is well to introduce the finger and sweep it around the interior of the abdomen, to assure yourself that no adhesions exist in the vicinity of the hernial opening. It is no uncommon thing, even in cases of short duration, to see the bowel of a dark chocolate color, in which case, after the stricture is cut, the bowel should be kept outside of the abdomen, and hot cloths, wrung out of sterilized water, applied until a change towards its normal color is observed.

The use of any form of antiseptic solution upon the damaged bowel is strongly advised against, however. Small perforations may be surrounded by a circular stitch and closed. It is true that this narrows the lumen of the bowel, but a considerable narrowing is safer for the patient than resection. Even when there is sloughing, demanding resection, it is believed that an artificial anus should be established until the patient has sufficiently recovered to warrant its closure by a secondary operation.

When in doubt what to do with the bowel, the safer plan is to leave it outside of the abdomen, if necessary several days, protecting it from septic contamination. If great shock exist at the time of the operation, or if general peritonitis is established, it is believed to be good practice to flush the abdominal cavity with sterilized hot water,—water as hot as can be borne by the hand, or even hotter.

#### OPERATION FOR CURE.

Having relieved the patient of strangulation, it should be our next consideration to protect him, so far as lies in our power, from a recurrence of the hernia. It is true now, as in all times past, that we have no method of cure for hernia that will not fail in a number of cases. This is due to the fact that the same inherent defect exists in the structure of the abdominal wall that acted as the predisposing cause of the original hernia. In many instances we cannot overcome this.



Fortunately, we can now resort with impunity to methods of restoring the parts to their normal condition that were in former years very hazardous to the patient. This fact is leading to a larger percentage of cures, and a greatly reduced mortality rate. There are very few instances when the operation for radical cure cannot follow that for the relief of strangulated hernia without increased danger to the patient. It is not within the scope and intent of this paper to consider the various operations at present in use, and I will only say that during the past four years I have used the operation of Barker, of London, with great satisfaction. This, briefly, consists of cutting off the sac as near the internal ring as possible, and then stitching up the canal with heavy braided silk. Union by first intention is secured in almost every instance, leaving the deep silk sutures permanently *in situ*.

Since I have sterilized and prepared my own silk I have had no trouble about the stitches coming out.

The old routine of giving an opiate to keep the bowels quiet after operations for strangulated hernia is believed to be bad practice. Opiates are seldom called for to relieve pain, and should never be given for other reasons. It is not an uncommon occurrence that the loop of bowel which has been subjected to constriction is in a state of temporary paralysis when it is reduced to the abdominal cavity. Fæces collect at this point, and not only increase the danger of perforation, but if they become hardened may cause intestinal obstruction. It is believed that the early administration of a mild saline cathartic not only tends to prevent accidents of this character, but that it relieves the congestion of the bowel more promptly than if left unaided.

In closing this brief and necessarily incomplete consideration of a very extensive subject, if I have not shown my belief in the following propositions, then surely it has fallen far short of my desire:

1. That the death-rate from strangulated hernia is unnecessarily excessive.
2. That medicines and external applications are dangerous, in that their use often results in delay, allowing destructive changes to take place.
3. That the operation for strangulated hernia, *if done early*, is neither a difficult nor a dangerous one, and affords immediate relief from one of the most distressing and alarming accidents to which mankind is liable.





FIG. 1.—CASE OF SPINAL CURVATURE RESULTING FROM EMPYEMA.





*SOME OBSERVATIONS ON LATERAL CURVATURE OF THE SPINE AS A RESULT OF EMPYEMA, WITH REPORT OF A CASE.*

BY CHARLES H. MERZ, A.M., M.D.,

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THE following somewhat meagre report of a case of lateral curvature of the spine is given with a view to emphasizing the importance of early operative interference in such cases.

The case is not taken from my note-book; I am obliged to give the history from memory, but it was so forcibly impressed upon my mind that I can give a general outline sufficient to present all the points of interest.

L. W., a girl about six years of age, came under my care two years ago. She had a history of having taken cold, and had some fever, cough, and dyspnoea. There was but little expectoration. She was treated by the family physician with but little amelioration of her symptoms, which continued for some weeks about the same. She seemed to lose ground steadily. After a little time the expectoration increased in amount, becoming purulent and offensive. Her general health was greatly impaired. The left chest was distended, but for some reason the attending physician failed to recognize the significance of this symptom. Another physician was consulted, with no better results so far as improvement was concerned. The swelling in the side finally "broke," discharging a large quantity of offensive pus. After this the pleural cavity was washed out daily; but it was too late to prevent necrosis of several of the ribs and the deformity shown in the accompanying illustration.

When she came under my observation I found a marked spinal deformity (see Fig. 1). The entire left lung was collapsed. The heart was pushed across the median line, and the respirations were short and jerky. At times there was a very pronounced cyanosis. The lips and cheeks were blue and livid. The pulse was very rapid; it was also very weak. She has at present a short, hacking cough. There has been necrosis of several of the ribs, as stated, and a large, firm, depressed scar shows where the spontaneous rupture of the abscess occurred. The child is of good constitution. I have not been able to find any history of a tubercular or scrofulous nature. She is hopelessly deformed, and will probably not live many years.

Some relief has been afforded her by cardiac and general tonics, and the application of a porous felt jacket that relieves the spine of pressure at two points. Yet, while she has made some improvement under this plan of treatment, it is far from accomplishing what I desire. I have, in addition, had her follow a regular daily course of gymnastic exercise suited to her



deformed condition, hoping thereby to strengthen her general system and develop the right lung. The jacket was applied during suspension, and it has afforded her so much relief that she cries to have it put on. Her position is a most distressing one. She is firmly fixed in the position shown, even the cervical muscles being contracted on the left side, holding her head down upon the shoulder.

I think this case is well calculated to impress upon the physician in a convincing manner the necessity for surgical treatment in cases of empyema. In my experience spontaneous cures are rare,—very rare,—and operative procedures should be the rule. Various operations have been suggested and tried. Probably it is safe to say that aspiration and simple puncture should be considered only as preliminary procedures to avoid immediate danger. The most reliable plan of treatment is, in my opinion, incision and resection of the rib. It is very improbable that expansion of the lung will be hindered or any deformity of the chest produced by an open incision.

Had this little girl been given the benefit of an early operation, her deformity *might* have been prevented, and her perfect recovery assured. It cannot be disputed that, when any effusion interferes with respiration or circulation, operative interference is indicated. The method of paracentesis may be left to the operator. My preference is decidedly in favor of the large opening in the wall of the thorax, kept open for the purpose of drainage. Naturally the pathological indications will vary in different cases, and the treatment must depend wholly upon the individual conditions.

Expectant treatment must not be relied upon too long. It would seem that a case presenting the conditions found in this one—dyspnœa, venous congestion of the lips and cheeks, enlargement of the left chest, dulness on percussion, a fluctuating tumor, and the displacement of the heart beyond the right sternal margin—would have been sufficient indication for operative interference.

Empyema is a disease that always calls for interference on the part of the physician. This subject was recently discussed before the German Congress of Internal Medicine at Vienna, and the opinion of nearly all the leading European physicians was there obtained. A *résumé* of this discussion would show that operation is always indicated, the only difference of opinion being upon the question of aspiration, drainage, or resection. As previously stated, my own preference is for the method usually employed in this country,—large opening and free drainage. By this plan excellent results have been attained. I have but little faith in the value of antiseptic injections, believing that free drainage will accomplish all that is necessary.

*IMMUNITY FROM LEPROSY OF THE FIFTH GENERATION.*

BY ALBERT S. ASHMEAD, M.D.,

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THERE is a fact, which, I believe, bears very directly and very strongly upon the subject of non-contagion of leprosy. It is recognized by all Oriental leprologists that every child of a leper has an inheritance of the disease, but diminished, and that after the fourth generation, if no healthy blood intervenes, the disease is entirely extinguished. There is about these matters a very interesting law in China, and consequently in Japan, the latter being, in spite of its western civilization endeavors, much more submissive to Chinese traditions than to European ideas. I find it expressed in Virchow's Archives, by Dr. Friedel, in these words: "No marriage with children of leprosy parents is allowed. If leprosy appears in a family formerly clean, all betrothals and contracts of marriage previously entered into are rescinded as a matter of course. Only when the betrothed or married persons suffer of the same degree and type of leprosy,—for instance, if they are both of the fourth degree of generation,—the alliance stands. Only equal degrees of age of the morbid cases are allowed to connect themselves by marriage. A leper of the fourth generation, even if he no longer shows any external marks of the disease, can only marry a woman of the same degree of age of the disease; their offspring is free from leprosy and no longer forbidden human intercourse."

Here we have, then, a perfect immunity acquired in four generations, and the fifth generation restores the health of the race. There is certainly a connection between this extinction of the disease and the present immunity of Europe, after that part of the world had been a prey to leprosy during several centuries of the Middle Ages. Evidently, in the West, simple isolation has unconsciously accomplished in the lapse of time what a rational legislation tries to bring about in the East. This legislation has probably preserved the population of China, and of the East in general, from entire destruction. I do not mean to say that the rule is always and carefully adhered to, because, in that case, the disease would be extinct now; but the rule is sufficiently known, and sufficiently adhered to, to make its salutary consequences felt.

Isolation, then, and exhaustion of the pathological principle, after the course of four generations, are the only methods known to us of acquiring immunity. Wherever the disease still exists, it is the violation of that law, with which all the Oriental priests and doctors are so familiar, that has



kept it alive. I had occasion, about a year ago, to speak of these matters at a time when there was very much and very silly newspaper talk about the danger arising from the presence of a few poor leprous Chinamen in New York. I beg permission to reproduce here my whole article, which I sent at that time to the *Tribune*, and which was published August 19, 1891.

The recent appearance of several Chinese lepers in New York, and the fact that they are permitted to pursue their avocation for a time, at least, among us, suggests to me the following points which it may be useful to consider in our conduct towards individuals of that kind, which the abundant flow of immigration may bring to our shores :

1. Leprosy in China is very frequent ; in the province of Quang-tung, of which Canton is the capital, alone, there are at least ten thousand lepers ; in all the maritime provinces of the south it rages with the greatest intensity. It abounds also in Hankow, Central China. Outside of Canton, in its province, there are many leper villages, also along the Yang-tse-Kiang, as has been noted by several European observers. As to the interior of China, our knowledge of leprosy, of course, is derived solely from indigenous information. We know that the disease is more frequent in Quang-tung, Quang-sae, Hoonan, and Fuh-Kun. In Pekin leprosy is rare. It is a generally admitted fact that it has not spread beyond the regions where it is established. Of course it should be a rule at San Francisco to obtain information as to the part of China where the Móngolian immigrant comes from, if such a thing is possible. At any rate, might not a certificate of health be required of him ?

2. The Chinese believe that the disease may be communicated by the contamination of food. This generally received opinion must seem to us strange at first ; but the fact that the lepro-bacillus is found in greater abundance in the mucous membranes about the mouth, throat, and nose lends it a certain degree of plausibility. Now, the Chinese established among us preserve, as everybody knows, all the customs of their own country. One of these customs consists in grouping together and eating their rice from the same bowl with those chopsticks which are promiscuously used by the whole house. If there is really something in the Chinese views of food infection, the necessity of isolating a leper from his countrymen is evident.

3. The Chinese government believes that leprosy is contagious, but it does not seem as if the people shared in this belief. There are asylums to isolate lepers all around Canton ; laws and regulations have been issued with the same view. Yet, in spite of the regulations, the leper may enter any city by paying a certain sum of money which goes to the leper fund. Altogether the Chinese act as if they did not believe in contagion. Nobody thinks of refusing to buy from a leprous huckster ; provisions are bought fearlessly in the store of a leprous caterer. The disease, we may therefore admit, cannot easily be communicated by contact. Yet if there is any danger in contact, then we may be sure that the Chinese among

us, true to their traditional customs, as they are, will do nothing to diminish it.

4. But even the Chinese believe, with many other Eastern nations, that leprosy is communicated by cohabitation. Their laws recognize this fact. Some strange superstitions show how much the people are convinced of it. It is a belief among the leprous women of China that a woman affected with leprosy can be cured by cohabitation with healthy males. Whether we admit the Chinese theory, or are inclined to doubt it, we cannot absolutely condemn it, and therefore should not legal obstacles be put in the way of such intercourse between the two races? At any rate a leprous Chinese should under all circumstances be sent back to his own country.

5. To allow the leprous male intercourse with healthy women is simply to strengthen and nourish the lepro-bacillus. The strength of the latter is gradually attenuated as lepers breed with other lepers, so that after a certain number of generations the obligate parasite is extinguished. This is the law of hereditary transmissibility which has influenced all Oriental legislation, inasmuch as marriage between recognized lepers is permitted, while between a leper and a healthy person it is prohibited. This tendency to further disease produced by the admixture of healthy elements may not be apparent at the first forthcoming generation. The disease sometimes skips a generation or two and remains latent, until in the third or fourth, perhaps, it meets with susceptible material. As long as there is a leper here, unrestrained in his actions, there is evidently danger of his perpetuating the disease among us.

6. It must not be believed that we are absolutely and under all circumstances safe from leprosy. It is true that European residents in China, even where their contact with the natives is very close, catch the disease only when they un-Europeanize themselves altogether, that is, eat and live with the natives on the most intimate terms. But then under these circumstances they catch the disease. As there is no danger here of such identification of the two races, we need no protection from a board of health for our own persons; but if some restraint is not put upon the intercourse of the races, future generations, even here, may have to pay for the imprudence of their fathers. It seems to me that it is the duty of our National Board of Health to send back to their own country the lepers who have it now in their power to poison several generations and to establish a horrible disease, to be exempted from which we have considered hitherto a precious privilege, and thanked God for it.

It follows from all that I have said that the danger from leprosy does not arise from any contagious action, but from the continual redintegration of the disease, which results from the intercourse of lepers with healthy individuals. Contrarywise to what would happen in syphilis, this intercourse strengthens and perpetuates the evil. As a matter of fact, no greater difference can be imagined in the etiology of two diseases than that which exists between leprosy and syphilis. I may here call the attention of all



dermatologists to the well-known Colles law. According to that law a woman who bears a child to a syphilitic man acquires perfect immunity from syphilis. Now, nobody doubts, either in China or Japan, that a leprous woman, bearing a child to a healthy father, acquires some measure of immunity, while the child receives and transmits the susceptibility. This is a fact diametrically opposed to those which are included in Colles law.

An assimilation, in whatever degree, of leprosy and syphilis, has been made by many otherwise acute observers. Yet what a difference in regard to contagiousness, for instance, there is in the fact that one disease, breaking out at the age of puberty, spares the race, while the other, congenital, appearing with the appearance of the individual himself (both parents being supposed to be syphilitic), would destroy the race. In leprosy the intervention of pure blood acts as a nourishment to the disease; in syphilis it attenuates the virus. The attenuation of germs, when they are allowed their regular course, seems to me to be of more general application. It is believed in Japan that a child of parents who enjoy immunity from small-pox, by having had the disease, possesses itself a natural immunity (not a perfect immunity) transmitted to it. This was the greatest obstacle to the introduction of vaccination into Japan: artificial immunity of the parents, they said, would interfere with the natural power of resistance of the child. Variolization (if I may coin the word) and syphilization were always popular in Japan in consequence of these same traditions. The complete devitalization of our introduced vaccine virus, after a certain series of inoculations, when a new virus had to be imported, proves that these Orientals were right. The devitalization of the germ of syphilis, which has occurred in Japan after thirteen centuries of syphilitic inoculation, proves also that a natural immunity is acquired by the very transmission of the disease.

Let me say now what I believe must be rationally deduced from all I have said: What is generally called contagiousness does not essentially belong to the disease itself; it is entirely in the individual who contracts it. Its measure is that of the resistance of the individual or of the race.

In four generations of lepers, regulated as I have said, the power of resistance becomes complete. In an unconscious, blundering, mediæval way, the resistance has been acquired by Europe. There is no place for the idea of contagion in these facts.

*ADENOID VEGETATIONS OF THE NASO-PHARYNX.<sup>1</sup>*

BY JOHN NORTH, A.M., M.D., Ph.C., F.S.Sc., LONDON,

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SIR MORELL MACKENZIE defines this trouble as "minute glandular vegetations growing from the vault and sides of the naso-pharynx, causing the voice to be dull and nasal in tone, the respiration to be buccal, frequently inducing deafness by setting up inflammation of the middle ear, and, in the case of children, often giving rise to the constitutional phenomena which follow prolonged nasal obstruction." I have selected this subject for a paper before this society, composed largely of practitioners of general medicine and surgery, because it is one of great importance not only to the rhino-laryngologist, but to every member of the medical profession. We look around us, and upon every side we see patients who have suffered, during a lifetime, from adenoid vegetations in the naso-pharynx. When I meet these patients on the streets, a single glance being sufficient to diagnose the pathological condition, I often wonder why the general practitioner is not more interested in these cases. I can account for it only upon the fact that their attention has not been called to the well-known conditions produced by this mass of pathological product in the vault of the pharynx.

Probably the first adenoid growths ever seen were those observed by Czermak in 1860, who described them as small tumors at the upper part of the naso-pharynx, which resembled a "cock's comb." In 1865 Sir Andrew Clark, Voltolini, and Löwenberg recognized and published reports of cases. But it was not until 1868 that Meyer, of Copenhagen, gave a complete account of granular disease in the pharyngeal region under the name of "adenoid vegetation." He fully described the symptoms and progress of the affection, and gave a mode of surgical treatment, which has been but slightly modified up to the present time. He was not the first to discover adenoid vegetations, but he was the first to realize their importance and fully describe them. Meyer had at that time (1868) examined two thousand children in the National School of Copenhagen, and had met with the affection in one per cent. of the cases examined. Since Meyer's time numerous writers and observers have furnished important contributions on the same subject, which have fully confirmed his original deductions. This condition is frequently spoken of as a hypertrophy, a hyperplasia, or enlargement of the pharyngeal tonsil, or, as it is sometimes called, "Luschka's tonsil."

<sup>1</sup> Read before the Northern Tri-State Medical Association, Quincy, Michigan, July 12, 1892.



At the back of the pharynx, near the base of the skull in the normal condition, we find a thickening of the mucous membrane amounting to the one-tenth of an inch. Luschka calls this thickening a tonsil, because it resembles in structure the so-called tonsils of the fauces. This so-called pharyngeal tonsil is composed of simple and compound follicular glands, and is simply a folding in of mucous membrane, a duplication and reduplication of normal mucous membrane; on the surface there are small prominences and numerous depressions and crypts.

Of the function of this glandular structure we know but little. We do know that when it becomes enlarged and has been removed there is no loss of function that we are able to detect.

The enlargement of this tonsillar structure frequently takes place. We generally find it in children. It is seldom developed after thirty years of age. It occurs in children more frequently than in adults, for the same reason that all glandular structures in children are more prone to take on morbid changes. Heredity seems to have some influence, as we frequently find several children in the same family with adenoid vegetations. Pathologically we would be interested in knowing whether this enlargement is a true hypertrophy or hyperplastic in its nature, or whether it be papillomatous in its character. But clinically this makes but little difference, as the symptoms and treatment would be the same in either case. Numerous causes are given for its growth,—a debilitated constitution, scrofulosis, nasal and naso-pharyngeal catarrh, etc.

In mild cases there is only a slight enlargement, with such symptoms as we have in naso-pharyngeal catarrh, except more aggravated in its form. From this slight thickening we have it increasing until it fills the entire naso-pharynx, and in some cases protrudes into the fauces, producing complete obstruction to the pharynx, preventing nasal respiration and compelling mouth-breathing. The symptoms of adenoid vegetation will, of course, depend upon the amount of obstruction produced. Nature designed that the naso-pharynx should be free, and serve as a means of communication between the five openings which enter it. Among the most common symptoms we have deafness, either slight or very marked, and one that is liable to become permanent, unless relief is afforded.

The openings of the Eustachian tubes are situated at the upper portion of the lateral walls of the pharynx, and are only separated from the pharyngeal tonsil by a small groove, called the fossa of Rosemüller. Deafness is produced by the enlargement pressing upon and obstructing the openings of these tubes, and a secondary inflammation follows. Adenoid vegetations stop up the posterior nasal openings according to the degree of the growth, causing mouth-breathing. Nature intended the nose as a preparatory department to respiration. Inspired air is freed from dust and germs and receives its proper amount of moisture, and is raised or lowered to the proper temperature by passing through the nose. Even if the nasal cavities are in a normal condition nasal respiration cannot take

place, on account of the plugging up of the naso-pharynx. The muscles of the growing child become distorted by constantly keeping the mouth open day and night. The action of these distorted muscles upon the soft and pliable bone of the child's face, together with the absence of admission of air to the accessory nasal cavities,—the frontal, sphenoidal, ethmoidal, and maxillaries,—causes a deficient development of these sinuses, giving a flat appearance to the cheek-bones, producing a peculiar physiognomy characterized by the open mouth, vacant stare, and almost idiotic expression of countenance. The hanging lower jaw and constant mouth-breathing, together with deficient development of the bones constituting the nasal septum and with augmented atmospheric pressure upon the roof of the mouth, cause a high-arched hard palate. A narrow lower jaw, with protrusion of the front teeth, is usually associated with long-continued and excessive adenoid vegetation at the vault of the pharynx in growing children. The non-use of the muscles of the wing of the nose prevents their complete development, so that the nose is either flat or pinched, or its alæ are distended; the muscles acting upon the corners of the mouth and eyes give them a drawn, contracted appearance.

Dr. Casselberry, of Chicago, says, "Not only do these unfortunates *look stupid*, but they really *are stupid*, and exhibit abundant evidence of mental hebetude, with inability to fix the attention to learn, to memorize, or to reason, the whole evidencing an impairment of cerebral function which Dr. Guye, of Amsterdam, has recently described under the name of 'aproxesia nasales.' Indeed, we hold it not illogical to believe that in extreme cases of long duration, associated, perhaps, with deafness, such alteration of cerebral function might ensue as to result in absolute idiocy."

My observation has been that children with adenoid vegetation are usually as bright intellectually as other children, and that the dulness is only apparent, on account of the deafness and stupid expression of countenance, which are relieved by operation. In infants the first symptom to attract attention is, as a rule, "hard" breathing or snoring during sleep, sometimes producing attacks of dyspnoea, resulting in enlargement of the lungs. These attacks frequently resemble spasmodic croup, or may even be mistaken for laryngitis. In explanation of this it is a well-known fact that the mouth in infants is almost always closed during sleep, and that the tongue is brought in contact with the hard palate, and that even in those rare cases where the lips are open no air passes through the mouth. As the air cannot pass through the nostril we have an explanation of the cause of these troubles. In older children it is the dull voice and deafness which generally attracts our attention. A chronic catarrhal condition exists, a yellowish-green secretion may be seen trickling down the back wall of the pharynx. In some cases we have asthma. In cases of long standing we frequently have deformity, such as "pigeon breast," "barrel-shaped chest," and "flat chest." Time will not permit me to speak of the "dead" voice of Meyer, nor of the effect of adenoid vegetation at the vault of the pharynx



upon the singing voice. These are of the greatest importance and will be the subject of another paper.

If you will but think of some children in families under your care you can call to mind children that have an anæmic appearance, stupid expression, drooping eyelids with the corners drawn, open and distorted mouth, projecting teeth, arched palate, pinched nostrils, the frog-nose, and the deformed chest, with mental dulness, loss of hearing, and nasal obstruction, with all their distressing symptoms.

By means of posterior rhinoscopy we are able to examine these growths. They are seen to partly or completely cover the posterior nares. They are generally of a pale color, but are sometimes pink, and even bright-red. As a rule, they are rounded in form and vary in size from a hemp-seed to a bean, but are occasionally much larger, and often occur in clusters. In some cases they hang down from the vault and back of the pharynx like stalactites; sometimes they are flat, like the granulations often seen on the posterior walls of the oro-pharynx; in some cases they resemble a cushion, extending from the posterior nares along the roof and upper part of the naso-pharynx to within a short distance above the level of the soft palate, with an irregular surface, produced by deep crypts and depressions. In other cases the surface will be smooth and regular. In cases where it is impossible to use the rhinoscope, as in very young children and in refractory ones of older years, we have to depend upon the sense of touch; by passing the index finger behind the uvula the growth can generally be easily felt, when they are found to be smooth, soft, and yielding to the touch, and prone to bleed. The sensation communicated to the finger is very much like that produced by placing the finger in a mass of earth-worms, the sensation of touch being in great contrast to the feel of the smooth, regular, and firm surface of the naso-pharynx.

*Treatment.*—In mild cases of adenoid vegetation of the naso-pharynx alterative and tonic medication, with local applications of antiseptics and astringents, in connection with good hygiene, will sometimes do much to relieve them. In the great majority of cases it will be necessary to resort to more active treatment. Surgery must come to the rescue in these cases. It gives us immediate, certain, and radical cure. They may be destroyed in some cases by the application of chromic or trichloroacetic acids, but as these acids are apt to deliquesce and run down the throat, sometimes down to the larynx and do damage to those parts, I seldom use them except in cases in which there is but slight thickening of the membrane. An application of sixty grains of sulphate of copper to the ounce of water will give relief in mild cases. By some operators the electro-cautery is used. As there are a number of objections to its use, I seldom use it in these cases. Rumbold grasps the growth with naso-pharyngeal forceps and produces pressure, but not sufficient to lacerate the parts; by this method absorption is promoted. Others grasp the growth with the naso-pharyngeal forceps and tear it off.

Instead of giving the methods of each operation, I will give the methods

I resort to in these cases. In some cases, especially adults, I prefer operating without anæsthetics. This can be done without much pain if the parts are thoroughly cocainized. But in cases of children and very nervous patients I use an anæsthetic. The operation is a bloody one, and it is horrifying to a highly-sensitive child to hold them by main force, pry open the mouth, and force instruments into the naso-pharynx. All this can be avoided by general anæsthesia, which gives time for a thorough examination and operation. After the child has been anæsthetized he should be held in the lap of an assistant, facing a good light. Then the mouth-gag should be introduced and managed by a second assistant, who stands behind the patient and steadies the head. As the soft palate is in the way, we have to use a palate-retractor. A number of these have been devised, but I prefer a piece of small rubber-tubing introduced through both nostrils, grasping the ends with forceps as they appear in the oro-pharynx, pull forward and tie the ends back of the head. This method pulls forward the palate on either side, and gives plenty of room for examination and treatment. It cannot become displaced, and can do no injury to the parts. Now the operator places himself in front of the patient, introduces his index finger into the naso-pharynx, and makes a thorough examination of the cavity, as well as the character and extent of the growth.

In some cases the vegetation is so soft and frail that the entire mass can be removed with the finger-nail, or with a spoon-attachment placed over the end of the finger. If I find it too firm to remove in this way, I introduce Gradle's post-nasal cutting forceps, with which I cut away portions of it without producing the slightest injury to the surrounding parts. After removing all I can conveniently with this instrument, I use Bishop's modification of Bocker's curette, having various sizes and shapes; with this instrument you can remove every portion of the growth and leave the membrane smooth. Plenty of blood will flow during the operation, which should be pushed as rapidly as possible, as the bleeding soon ceases after completing the operation.

After the operation the child should be kept quiet, or in bed, if possible, for a few days, until all the surgical condition has passed off. It is best to remove all the growth at one sitting. This can be ascertained by the introduction of the finger. The curette should be used till the surface feels smooth and firm. If small portions remain they are very readily absorbed by the application of the sulphate of copper solution before mentioned. A second operation is seldom required, but if the growth returns it should be removed again.

Some operators only remove a small portion at each sitting, introducing the post-nasal forceps once every third or fourth day. The administration of the syrup of the iodide of iron, in fifteen- to thirty-drop doses three times each day, seems to benefit these cases, especially anæmic ones.

Is it right to let these patients go through life with loss of hearing and the deformities of face and chest, and with the other inconveniences and



dangers of mouth-breathing, when such a simple operation will give entire relief?—an operation devoid of danger. After such an operation in a child nature will restore the deformity in most cases. The cause being removed, nature has a chance to do her work. In some cases the habit of mouth-breathing has become so persistent that when the patient falls asleep the mouth will open. This can be corrected by placing a bandage under the chin, and another around the forehead, fastened to the first bandage at the side of the head.

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### *MEDICO-LEGAL STATUS OF INEBRIETY.*

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Is inebriety a vice or a disease, or in what proportion is it the one or the other? Upon our replies to these questions will depend the opinion entertained as to the legal status of the inebriate. By people in general, inebriety is regarded as a moral vice or sinful habit, to be relinquished at will. Formerly the same moral defection was held regarding insanity, epilepsy, and other neuroses, whose outcome was seen in abnormal conduct. Hence, the common view of inebriety is but a slight modification of the old-time notion which attributed the different neuroses to possession by the devil, and which looked to legal and moral influences as the means of prevention and cure. That the view is a mistake is proved by the failure of legal and moral measures to cope with the evil. But at the present moment there are signs of the shifting of the point of view from which inebriety has been regarded as a sin or evil possession, to be exorcised or escaped from by pledges or prayers. The investigations of medical science are tending to establish the claim that inebriety is a cerebro-psychical disease beginning in some cerebral defect in alteration of function and structure; that the causes are complex, depending upon many and unknown physical conditions, either inherited or acquired; and that its etiology must be studied from a physiological point of view, and its treatment be pathological.

The object of the present paper is to consider briefly the nature of the disorder in the light of its origin; to inquire whether there are any forms of inebriety which should exempt the drink-victim from criminal responsibility, and if so, what measures are necessary to secure his exemption. Criminal intent is presupposed in criminal responsibility; and the essentials to criminal intent are (1) knowledge that the act in question is wrong and forbidden, and (2) power to refrain from doing it. Is there anything in the nature of inebriety inconsistent with the possession of these essentials by the inebriate? Or, to repeat the original query, is inebriety a disease—

an involuntary and inevitable pathological condition of which perverted conduct is a characteristic symptom?

Watson defines disease as "embracing all deviations from the healthy standard;" and Bristowe's more philosophical definition is "a complex of some deleterious agency acting on the body, and of the phenomena (active or potential) due to the operation of that agency." The literature of inebriety, though still in its infancy, informs us that the pathological condition of the inebriate fulfils the requirements of these or any other comprehensive definition of disease; that is, the literature of inebriety establishes a high degree of constancy between chronic alcoholism and certain organic lesions which may be said to characterize it. We find in chronic alcoholism, besides a general systemic disturbance, diminished resistance to diseases, and a tendency to fatty degeneration; that there are characteristic lesions of the heart, liver, and kidney; and that the brain, spinal cord, and peripheral nerves of the inebriate exhibit peculiar derangement. There are also what may be called the indirect arguments in the records of the cures of inebriates, as of other diseased persons, by therapeutic measures; and in the growing recognition by life-insurance companies of increase of risk owing to indulgence in alcoholic drink. The following opinions are expressed by special students of the subject: Dr. Kerr says, "Inebriety is for the most part the issue of certain physical conditions; whatever else it may be, it is as unmistakably a disease as gout, or epilepsy, or insanity." Dr. Carpenter: "There can be to my mind no question about it. Moralists may say what they please, the medical men know perfectly well that inebriety is, when once it is established, a *disease* that is beyond moral treatment altogether."

Granting that inebriety is, at least in many instances, a disease, what shall we say of its origin? Is it voluntarily incurred, and the subject responsible for the affliction? In a proportion of cases an affirmative answer might be given to this question; in a much larger proportion the reply must be in the negative. Recoil as we may from the notion of irresponsible inebriety, we cannot consult our preferences when we deal with facts. We must take into account the dispassionate and uniform testimony of men who have made the subject of inebriety a life-study, and whose testimony is, that all grades of ancestral defects and brain failures are seen in faulty acts and thoughts among their descendants. No alienist of to-day denies the influence of heredity, either homologous or eccentric. In this second form—eccentric heredity—the alcoholized mental state of the progenitor becomes transformed into varied nervous disorders in the descendant, inebriety forming one phase of the fatal inheritance. Dr. Dodge claims that fifty per cent. of all inebriates are hereditary; Kerr thinks over fifty; Dr. Magnan claims eighty per cent; Dr. Crothers, eighty; Dr. Mason, sixty, and so on.

The notion that alcoholic inebriety is an inherited disease is not new. It belonged to the wisdom of the ancients. Diogenes said to a stupid boy,



“Your father must have been drunk at the time of your procreation ;” Plutarch taught that “one drunkard begets another ;” Plato forbade the use of wine to the newly-married ; and modern medical science adds, “Alcoholism in progenitors will produce physical and mental degeneration in their descendants, and all the neuroses that arise from a defective nerve organization ; and that moderate drinking even on the part of an ancestor will bequeath an impaired nervous system, whose possessor has either the original vice of the parent, or some of its countless protean transformations.”

Besides hereditary, we have also traumatic inebriety, or inebriety resulting from head injuries, concussions, contusions, lightning and sunstroke, overheating, exposure to alternations of intense heat and cold, etc., etc., and shown in change of character, lapses of memory, sleeplessness, irritability, suspiciousness, homicidal and suicidal impulses, and other forms of “pathological immorality.” Previous alcoholic habit, or inheritance, complicates and aggravates traumatic cases. We have thus in heredity and traumatism two well-defined deleterious agencies operating upon the body to produce the phenomena which we recognize as disease.

The phenomena of inebriety are distinguishable as characteristic of different phases of the disease, as dipsomania, amnesia, etc. A condition of amnesia, or brain-trance, is frequent in inebriety and important in its medico-legal relations. The frequent statement in court by prisoners that they do not remember anything they are accused of, appears from scientific study to be a psychological fact. It is well known to students of mental science that in certain unknown brain states memory is palsied. Like the somnambulist, the person may seem to realize his surroundings and be conscious of his acts, and later be unable to recall anything which has happened. Sometimes events that occur in this state may be recalled afterward, but usually they are total blanks. When this occurs in inebriety it is called alcoholic trance, or amnesia. Memory and certain brain functions are suspended at this time, while the other brain activities go on as usual. If a person has suffered from sun- or heat-stroke, the trance may occur at any time. This trance state in inebriety is a distinct brain condition that exists beyond all question and doubt.

The inebriate, or the man who uses alcohol to excess, has always a defective, an atypical organization. When this is due to heredity or traumatism, it exists potentially before it is developed by the use of alcohol. Under these conditions of psychical degeneration, mental operations are abnormal. An intoxicated man will commit offences in thought, in speech, and in conduct, which in his sober mind he would regard with indignation and shame. The anæsthetic, the benumbing, the paralyzing influence of alcohol is distributed over the whole nervous organism, but seems to especially affect the organs of moral perception and self-control. An irresistible proclivity to wrong-doing is characteristic of alcoholic inebriety, manifesting itself in offences against decency, or in flagrant criminality ; and the key to this result is found in this, that chronic alcoholism weakens the

moral perceptions. The diathesis of inebriety (Kerr) consists in deficient tonicity of the cerebral and central nervous system, with an accompanying defective inhibition, or power of control. This defective inhibition is the stamp, the trade-mark of inebriety. It may be described as a psychical innutrition from which arises a psychical hunger and thirst for intoxicants, as imperative, as unappeasable as physiological hunger and thirst. It is in this defective inhibition, this starvation of the supreme nerve-centres, that we find the source and origin of drunken follies and frenzies. As a rule, the crimes and offences of inebriety are not those of premeditation, of malevolent reasoning, or of choice. They are often unaccountable, are not excited by natural or intelligible motives. They are the outcome of defect, of incapacity, of an impulse called irresistible, because no inhibitory or resistant force reacts against it. The inebriate's act is properly termed inevitable, because the only power adequate to repress it is physically inoperative. The natural defence against the brutal, indecent, or destructive impulse,—the nervous basis of moral perception and self-direction,—is broken down and disabled.

With this knowledge of inebriety, inherited, acquired, or resulting from traumatism, what shall we conclude as to the exemption of the inebriate from criminal responsibility? Is it right to hold to moral accountability an individual incapacitated for knowledge of the nature of his act, or who, if able to distinguish between right and wrong, as are many of the insane, is without power to refrain from doing the wrong? In the relation of the inebriate to the civil law, his inability to protect himself is assumed, and the law has thrown around him its protecting arms. Marriage and other contracts by habitual drunkards, who have been so adjudged (reported by Clark Bell, "Medical Jurisprudence," p. 4), have been declared actually void. It is also held that habitual drunkenness is *prima facie* evidence of the subject's inability to manage his own affairs, and courts have taken absolute control of the persons and estates of drunkards, in their own interest and for their presumed good. But in the relation of inebriates to the criminal law, for illegal acts committed while intoxicated, the medico-legal view that irresponsibility should follow has not been fully conceded.

The penal procedure regarding inebriates was founded, and is in a large degree maintained, in ignorance of any *preceding pathological brain disability*. The New York penal code lays down with precision the provision of law governing the question of responsibility in that State as follows:

(a)<sup>1</sup> *Intoxicated Persons*.—No act committed by a person while in a state of intoxication shall be deemed less criminal by reason of his having been in such a condition. But whenever the actual existence of any particular purpose, motive, or interest is a necessary element to constitute a particular species or degree of crime, the jury may take into consideration the fact that the accused was intoxicated at the time in determining the purpose, motive, or intent with which he committed the act.

<sup>1</sup> Quoted by Clark Bell before Medico-Legal Society of New York, 1887.



(b) Voluntary intoxication, though amounting to a frenzy, has been held not to be a defence when a homicide was committed without provocation.

(c) *Delirium tremens*, however, a condition which is the result of drink, and is remotely due to the voluntary act of the drunkard, has been held to be a defence to acts committed while in the frenzy, similar to the defence of insanity.

(d) It has been held that when inebriety develops into a fixed and well-defined mental disease, this relieves from responsibility in criminal cases, and such cases will be regarded and treated as insanity.

(e) It may be regarded as a settled rule that evidence of intoxication is always admissible to explain the conduct and intent of the accused in cases of homicide.

(f) In crimes less than homicide, and especially where the intent is not a necessary element to constitute a degree or phase of the crime, this rule does not apply.

Numerous other recent provisions for partial exemption of inebriates from criminal responsibility might be cited, as Sir Fitz James Stephens's dictum, that "there should be no responsibility when the absence of the power of control is not from the fault of the accused;" or the important decision of Baron Pollock recognizing the influence of heredity. In this case the prisoner, who had killed his mother with great and prolonged violence, was acquitted, there being evidence of delirious and acute alcoholic disease, as well as of insane heredity. The learned judge ruled, that if the insane predisposition was the main factor, though alcohol was the exciting cause, the plea of irresponsibility held good. Another recent English opinion is by Mr. Justice Day, who ruled, in the case of a man charged with the wilful murder of his wife while intoxicated, that the question was whether there was insanity or not; that it was immaterial whether it was caused by the person or by the vices of his ancestors; that it was immaterial whether the insanity was permanent or *temporary*; and that if a man were in such a state of intoxication that he did not know the nature of his act, or that the act was wrongful, his act would be excusable.

These judicial decisions are a great advance upon the judicial decisions of former times, such, for instance, as the ruling of Plowden (1548), that "if a person while drunk kills another, this shall be felony, and he shall be hanged for it though he did it through ignorance, being occasioned by his own act and folly, and he shall not be privileged thereby;" or of Coke, who calls a drunkard a *voluntarius dæmon*, and says that "drunkenness doth aggravate the crime;" or of Lord Mansfield, who says that "drunkenness, being itself a crime, shall not be made an excuse for another crime."

But something beyond the advance already made is required, for, as pointed out by the President of the New York Medico-Legal Society (Clark Bell), the practical result of the present attitude of the law towards

the inebriate is to leave the whole subject to the discretion of judges relative to the punishment in each individual case. "This is a great public wrong, because each judge acts on his own idea, and one is merciful and another harsh."

It is for publicists, judges, and law-makers to consider the claim now made that medical science has demonstrated inebriety to be a disease which incapacitates the inebriate for the commission of crime by disabling the brain, which is the instrument of mind, from discharging its functions normally. The point where an individual has no longer the power to resist drinking is the point where it may be said that the disease of inebriety begins. From this point the loss of will-control ensues upon psychical degeneration, proceeding to conditions where acts are neither premeditated nor realized.

While the jurist must deal with what *is*, the physician should consider what *ought* to be. In my opinion the future of medical jurisprudence should be: The exemption of the true inebriate from punishment for crime, and, under some circumstances, the vitiating of his civil acts.

The medico-legal inquiry will then be for determining *who* are really the subjects of the disease, and for drawing a sharp line between the vice of drunkenness and the *disease* with its characteristic psychical and physical signs; between the individual who *chooses* to indulge in alcohol and the individual who is irresistibly impelled by the craving, often periodical, to satisfy his psychical hunger and thirst with alcohol. This latter individual is a subject for restraint and medical treatment from the earliest manifestation of his disease, like any other victim of an inherited or acquired neurosis. To take no account of his condition until manifested in an act of violence, and then to attempt to protect society from his further unlawful acts by limited restraint without treatment, is to ignore the plainest dictates of medical science, and to relapse from the vantage-ground of modern insight to the ignorance and superstition of the past. The problem of the present is, "to fully preserve the rights of society in its relation to the unlawful acts of inebriates, with a proper and just sense of the rights of the inebriate himself." And for the solution of the problem we need mixed commissions of physicians and lawyers to formulate the medico-legal status of the inebriate, in terms suited to the enlightenment of this day.



# CLINICAL LECTURES.

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## *ANEURISM.*

CLINICAL LECTURE DELIVERED AT THE MIDDLESEX HOSPITAL.

BY J. W. HULKE, F.R.S.,  
Senior Surgeon to the Middlesex Hospital, London.

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GENTLEMEN,—In Bird ward you have had for several weeks past an opportunity of watching a case of aortic aneurism. This and some other cases of aneurism recorded in my note-book suggest the subject of to-day's lecture.

Perhaps it may have struck some of you as singular that a patient suffering from aortic aneurism should be in a surgical ward, since such aneurisms are generally admitted into the medical. The principal reason for this unusual course is that the woman when, several months ago, an inmate of the Brompton Hospital, found such great relief from Tuffnell's treatment that, on my suggesting a renewal of it, in consultation with Dr. Curley, she gladly acquiesced, and he, knowing my interest in this case, kindly transferred her to my care. Tuffnell's treatment consists, in principle, in reducing the quantity of food and drink to that which just suffices to maintain life under circumstances of perfect rest in bed, for the purpose of reducing the force of the heart, lessening arterial tension, and favoring the deposition of fibrin in the aneurism. Many years before that distinguished surgeon, Tuffnell, wrote upon it and prominently brought it under the notice of the profession, my old teacher, Dr. R. B. Todd, treated advanced aortic aneurism on essentially the same plan, which, except for the absence of bleeding, does not differ in any important principle from treatment practised in far earlier times. When a resident officer in King's College Hospital I was deeply impressed by some results obtained by Dr. Todd in that institution, and subsequently, from time to time as occasions offered, I put this method in practice myself. What may occasionally be effected by it may be gathered from this outline of a case so treated some years ago in Pepys ward.

On November 22, 1879, J— S—, aged forty-five, was admitted into Pepys ward with an aortic aneurism which bulged the left front of the chest under the left sternoclavicular joint and collar-bone. The prominence of this area and its pulsation were so conspicuous that it was evident that already absorption of the bony and cartilaginous frame of the chest had made considerable advance. He had great pain darting from this area to the shoulder-blade, and also down the inner side of the left

arm. Auscultation revealed (in addition to the signs of aneurism) indications of pressure on the left bronchus and lung. He had a dry, hacking cough, and his voice was a whisper. He could not lie down, and he was relatively easy only when propped up in bed with pillows.

(He dated the beginning of his illness from the preceding June. It began with severe paroxysms of cough, which usually ended with retching. Then he lost his voice. While coughing he was seized with severe pain in the chest, which lasted an hour. His business (grocer) obliged him often to lift heavy weights. He came to the out-patient room for advice about his loss of voice. This was found to depend on disordered action of the laryngeal muscles, and in seeking for the cause of the disturbance of function of the recurrent laryngeal nerve the aneurism was discovered.)

He was at once placed on a very restricted diet. The bulged area of the chest was covered with a belladonna plaster, and for the pain henbane was freely given him. At the end of a week the pulsation in the aneurism appeared less forcible, and his pain was less severe. This improvement continued; but in the closing days of December pneumonia of the left lung supervened, and during several days his condition was very critical. The pneumonia passed off, and his diet, which had during its continuance been improved by small quantities of alcohol, was again reduced. On March 1 it was recorded that the pulsation of the aneurism was so diminished that it could scarcely be felt. This improvement continuing in May, his diet was slightly and slowly increased. When discharged from the hospital in July the only pulsation noticeable in the originally heaving area was that of a distant, non-expansive stroke, such as would be communicated to the chest-wall by a solid mass. After the patient's return home he found himself able to conduct his business, which he continued to do until the following winter, when his life was ended by an aortic chest-inflammation caused by exposure to severe cold,—his house took fire at night, he hastily escaped in his bedclothes, and he was chilled before he could obtain shelter.

Our present patient in Bird ward is a highly intelligent woman. She knows how precarious is her tenure of life; she is cheerful and docile, and she shows no disposition to transgress the strict regimen imposed on her. Her breakfast was two ounces of milk or *weak* tea and one small, thin slice of bread and butter; her dinner one ounce of meat and one small potato; tea and supper same as breakfast. Later the quantity of meat at dinner was reduced to one ounce, and the quantity of fluid at each meal also decreased.

Already, after a couple of weeks on this diet, her pain is less, and the pulsation of the aneurism is, I think, rather less forcible. For those of you who have not seen the patient I may mention that at the date of her being received into the hospital the aneurism had broken through the right corner of the upper part of the sternum and ribs, forming a conspicuous, circular, heaving hummock about two inches across, from which outwards nearly to the shoulders over the front of the chest a strong pulsation was perceptible. The right wrist-pulse was nearly imperceptible; that of the left wrist being of average volume and force.

Should the aneurism continue to advance through the chest-wall, and its bursting externally appear to be imminent, can anything further be done to avert or retard this catastrophe? It is obvious that the injection of chemical coagulants into the sac is inapplicable to thoracic aneurism, since the first condition for their employment without risk of instant disaster, viz.,



their exclusion from the general circulation by temporarily burning off the sac, cannot be fulfilled. There remain, then, the endeavor to obtain deposition of fibrin by mechanical or by electric means. The mechanical means which have been employed are the temporary introduction of fine needles into the sac, about which it is hoped that fibrin will be thrown down and entangled, and remain attached to the inner surface of the sac when the needles are withdrawn, and the permanent placing of thread-like objects in the sac, around which clot will form and be retained. In this hospital the late Mr. C. Moore passed into the sac of an aortic aneurism several yards of soft iron wire. It induced clotting, but the patient quickly died of aortitis and endocarditis, beginning in the sac, excited, as I thought, by the wire. This method, it should be remembered, was not carried out with all those strict measures to insure asepsis which we now regard as essential; and the substance employed had this defect, that the operator could not place it where he desired, nor could he insure that it should not pass from the sac into the tube of the aorta. It was this latter consideration that led me in two cases which I treated, in conjunction with Langley, to use a fine elastic steel wire, to which a spiral form had been given by coiling it on a mandrel; from this we expected that, on entering the sac, the wire would curl itself up around the point of entrance, which actually occurred. In these cases a considerable coagulum was obtained in the sac, and we thought the fatal issue was delayed; and although in neither case did this method bring about recovery, it was evident to us that its effect had not been, directly or indirectly, injurious. Other surgeons have preferred horse-hair, but to this the same objections lie as to soft iron wire, with the additional one of the less certainty of its being absolutely aseptic. Galvano-puncture, which I have also tried, is still faulty in its technique, and capable of improvement. The avoidance of necrosis around the spots of puncture is most desirable, yet its occurrence is almost certain unless the needles are sheathed with some insulating substance to within a short distance of their point; yet if they are thus sheathed, this so greatly increases the frictional resistance to their passage through the tissues that an inconvenient degree of pressure is needed to thrust them into the sac. All insulating substances that I have tried had this defect, and until it can be remedied galvano-puncture can claim to be regarded only as a last resource in extreme cases, since it entails risks which largely counterbalance any benefit to be hoped from it.

Aneurism seems less common now than formerly. By some its decreasing frequency has been attributed to diminished prevalence of alcoholism and syphilis, two commonly-recognized factors of endarteritis deformans inducing to aneurism. Alcoholism, though unhappily still too prevalent, all will admit to be less general than formerly; and syphilis, though as rife as ever, is, owing to more judicious treatment, less damaging than in by-gone days. The relative immunity of women from aneurism lends some support to these views, since they, at least in those classes above the very lowest, and the criminal, are relatively free from both disorders. It should

not, however, be ignored that women's occupations do not demand the great physical efforts, with attendant strain on the circulating apparatus, incidental to the heavy labor done by many men. Mr. Graham, who for many years was formerly surgeon to one of the largest metropolitan prisons, once told me that he had found aneurism to occur as often in female as in male prisoners, which he attributed to the irregular lives of these women and to their greater emotional excitability.

I need scarcely remind you that aneurisms of the arteries of the extremities form the larger number of those admitted into the surgical wards; and that of these aneurisms of the popliteal artery form the majority. This peculiar liability of the popliteal artery has been casually connected with frequently-recurrent, acute flexure of this vessel, accompanied with momentary great increase of blood-pressure in it on the proximal side of the point where it is acutely bent; and it has also been attributed to mechanical derangement of the tissues of the arterial wall, the normal elasticity of which has been damaged by atheroma. The alleged relative greater frequency of popliteal aneurism in sailors (in accord with my own observation) and in postilions, formerly a numerous class when "posting" was the usual mode of travel, give some support to these ideas.

*Acute, sustained* flexure of the leg on the thigh has, you are probably aware, been employed as a mode of treating popliteal aneurism. It was prominently brought under the notice of the profession by Mr. E. Hart, but it had been tried several years previously by Mr. W. Fergusson,<sup>1</sup> in King's College Hospital, where I was his house-surgeon. He kept the patient's knee acutely bent by bracing the heel to the buttock with a strap sewed to a slipper, and secured to a belt buckled about the hips. The method was unsuccessful in the case in which he tried it, and he afterwards tied the patient's femoral artery.

In the following case frequent acute flexure may not have been without determinant influence in the formation of an inguinal aneurism in a man addicted to drink, who had also had syphilis, and, when the aneurism first was noticed, had lymphadenitis.

On 12th of September, 1856, R. R., aged thirty, a brass-fitter, came to my out-patient room in King's College Hospital (where I was then assistant surgeon) for advice about a swollen testicle, and swellings in both groins. In his left groin he had an aneurism of the common femoral and external iliac artery. Its pulsation was very forcible. The testicular disorder was a cystic hydrocele; and in each groin was a cluster of indolent enlarged lymph-glands.

The man stood several hours daily at a lathe, turning the treadle usually with his left foot. He had acquired syphilis in his twenty-third year, and was treated for this at the Lock Hospital. He drank daily four pints of beer and a half-pint of gin. He first noticed the lump in the groin six

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<sup>1</sup> Later Sir W. Fergusson.



months before he came to me; it was then about as large as a marble, and its heaving was remarked by himself and his wife three months later. He was made an in-patient, and Mr. W. Fergusson tied his external iliac artery.

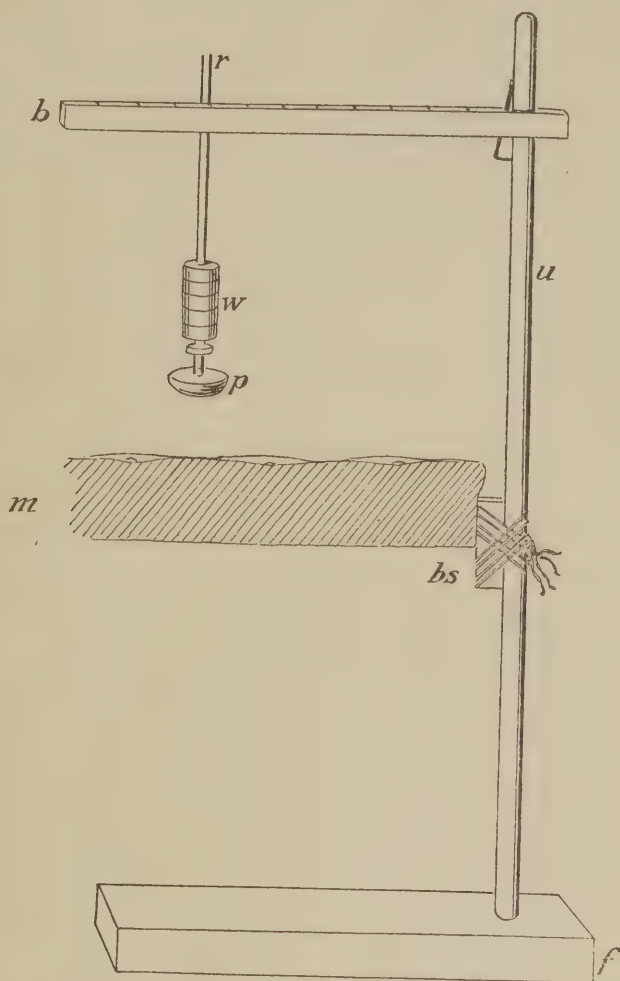
At present there is a general consensus in favor of the treatment of aneurism by proximal impression of the artery in which it is seated, and, when this method is applicable, as it so appropriately is in most instances of popliteal aneurism, it is nearly always first tried before recourse is had to the ligature. But the successful employment of pressure applied in this way is largely dependent on the docility and on the intelligent co-operation of the patient. If he be of restless and intractable disposition, pressure will hardly be carried out to a successful issue; since, however mildly the surgeon may graduate the pressure, and however exactly he may adjust the pad of the compressor upon the artery, unless the patient remains perfectly still, the artery frequently slips from beneath the pad; and when this has occurred the compressor might better be off than on the limb, for lying on the table it would not give the illusion of something being done when it is, in fact, inoperative. This slipping aside of the artery is very apt to occur when the artery is dilated and its coats are rigid, and when it is deprived of its normal support by the disappearance of fat and by the laxity of muscle in persons advancing in years, which renders the artery unnaturally mobile. In such a case efficient control can be secured only by digital compression from a number of dressers at the bedside taking charge of the case in relays.

In a very troublesome case of this kind recently under my care, a continuous control of the circulation could only be obtained by the attendant fixing the femoral artery by two fingers of one hand, placed one at the proximal and the other at the distal side of the point of pressure, whilst he steadied the stem of the pad with his other hand. Obviously such unremitting, close supervision can be had only under very favorable circumstances. Some arteries normally are more mobile than others; so the brachial is with difficulty amenable to instrumental compression. Carte's is perhaps now the most widely-used compressor, in one of its many modifications. It is an excellent instrument of proved utility, but I have found in less instructed hands that the application of pressure by weights generally has proven more manageable. A very serviceable contrivance, that can be made by any intelligent artisan, consists of an oblong block of lead eighteen inches long by three inches vertically and four inches horizontally in cross-section. Near one end it is pierced by a round hole one and three-quarters inches in diameter. This heavy block of lead is placed under the bed, on the floor, serving as a solid, stable foot or base, and the hole in it as a socket in which is inserted the lower end of a cylindric, upright wooden rod, about five feet high, and one and one-half or one and three-fourths inches in diameter. This, placed conveniently against the side of the bedstead, opposite the upper part of the thigh, is secured to the bedstead by lashing with a couple of turns of cord which should fix it perfectly. Over the upper end of this upright, is dropped one end of a hori-

zontal wooden bar, of square cross-sections, two inches inside, bored near one end to fit in the upright, on which it should work freely in a horizontal plane. This bar can be rigidly fixed at any desired height by a wedge driven in a slot at one side of the bore-hole. A series of vertical holes, two inches apart, pierced through this horizontal bar, allows through any of them a vertical rod (a piece of brass tubing) to be passed; and these perforations are enlarged from their mid-depth towards the upper and the under surface of the bar, which makes it possible to slant the vertical brass rod to any small convenient angle with the plumb-line. To the lower end of the brass rod is attached a soft rubber pad (I have improvised this out of the button taken off the butt of a salmon-rod), two inches above which is a flange which supports the weights. These are perforated leaden disks of one pound, having a slot cut from the centre outwards, which allows them to be slipped on and removed from the rod without the necessity of passing them over the top of the latter. This little apparatus, which is inexpensive, was constructed for me by a mechanic in the employ of Messrs. Maro & Thompson, surgical-instrument makers. It is much handier and more efficient than some cumbrous contrivances for weight-pressure in previous use.

It was employed advantageously (in conjunction with Carte's tourniquet) in the following case:

A builder, aged thirty-five years, admitted into Founder Ward on the 5th of March, 1890, had on his left ham an aneurism of globular figure, of the size of a small orange; it pulsated strongly, and it had a soft, blowing murmur. No evidence of atheroma was discoverable in his other arteries; and his thoracic and abdominal viscera appeared healthy. He was a tall, well-grown man, abstemious but distinctly gouty (as was his father). He had for several months had pain in the "knee," and slight lameness, thought to be rheumatic, and so treated until one month before he saw me,



Simple form of weight-compressor for aneurism.—*f*, under block; *u*, upright; *b*, horizontal bar; *r*, rod; *p*, pad; *w*, weights; *bs*, bedstead-frame; *m*, mattress.



when the aneurism was discovered. His business required him to mount ladders, and as his work was often at a distance from his home, he rode much.

On the following day (6th of March) pressure was applied with a Carte's tourniquet to the superficial femoral artery in the upper part of Scarpa's triangle; and this was continued during several hours daily until the 13th of March, when the skin was found to have become blebbed where pressed on by the pads. Weight-pressure was now applied to the common femoral artery as it rests on the horizontal ramus of the pubis, Carte's tourniquet being alternately used in order to obviate the ill effects sometimes resulting from pressure long applied to one spot of skin. The weight-pressure appeared to be more efficient than Carte's instrument, and soon after beginning to use it the aneurism became harder and smaller, pulsating scarcely except at its outer side. On the 25th his leg was flexed at night when the instruments were off. From the 28th of March till the 3d of April inclusive the compression was controlled by relays of dressers, and on the latter day at 4 o'clock P.M. pulsation entirely ceased in the aneurism. This shrank, and on the 12th of April he returned home.<sup>1</sup>

One of the most anxious questions which the surgeon may have to consider in the treatment of an aneurism is the proper measure to adopt if the sac should rupture. Three courses are open to him,—viz.: (a) To tie the artery on the proximal side of the aneurism at a distance from it, as in Scarpa's triangle or in Hunter's canal, where the aneurism is popliteal; (b) to freely expose the aneurism by a sufficient incision, turn out the clot (both that within and that outside the sac), and tie the artery above and below its communication with the sac; and (c) amputation. Let us consider each of these plans in turn. Several years ago I saw, in consultation with Dr. Frederick Robinson, the surgeon of his regiment, a piper in the Scots Fusileer Guard, who, whilst under treatment for a popliteal aneurism by pressure on the femoral artery, had a sudden accession of severe pain in the knee, accompanied by swelling, which marked the outline of the aneurism, before distinct, and coincidently with which pulsation, previously strong, became weak, indistinct, and seemingly diffuse. Taking these signs to mean rupture of the sac and leakage of blood into the tissues around it, as the extravasation was yet slight and the man otherwise in good health, I counselled ligature of the superficial femoral artery. This was at once done by Dr. Robinson, with the happiest results. The local swelling subsided, the aneurism was cured, and the piper rejoined his comrades.

Let me recall a case, which some present may remember, where the same measure was equally successful.

A. G., aged forty-four, a bricklayer, was admitted into Founder Ward on January 3, 1890. He had in his right ham an aneurism larger than an ordinary orange; its greater diameter, crossing the long axis of the limb, measured four and one-half inches, and its shorter diameter was three inches. The swelling pulsated forcibly, and it had a soft, blowing sound and a thrill, the latter being most emphasized over the inner side. At the ankle the pulse in both tibials was weak, and it lagged behind that in the other limb. The man's history was interesting, as it revealed a possibility of the origin of the aneurism being referable to severe injuries sustained three years previously, for which he had been under my care. He had severe contusions, several

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<sup>1</sup> Up to the present time he continues well.

ribs broken, and a dorsal dislocation of the right femur which I reduced by manipulation. Soon after convalescence, on resuming work, he found his right knee "stiff" occasionally. The disability increased in spite of the use of embrocations and an elastic stocking, until at length he was quite laid up, and ten days before his admission into the hospital he sent for a doctor, who detected the true nature of the disorder, which had been previously thought rheumatic. He was a large-framed, muscular fellow, accustomed to drink daily from three to four pints of beer, and sometimes also spirits. He also had had a chancre followed by sore throat. In his work he also had to lift very heavy weights, to kneel much, and to go up and down ladders.

Two days after receiving him again into Founder Ward, on January 6, pressure was begun with the weight-appliance at the groin, alternated with Carte's tourniquet in Scarpa's triangle. Five dressers sat by his bedside and watched and regulated the compressors from the 13th to the 16th of January inclusive. On the latter day soreness of the skin beneath the pads compelled temporary discontinuance of the pressure. Distinct, though not great, improvement in the condition of the aneurism was noticed to have occurred. The tumor was smaller and somewhat firmer. In the afternoon of the 18th of January he complained of sudden great increase of pain about the knee, and concurrently with this some swelling around that joint was thought to be noticed. By the evening there could not be any doubt in regard to the swelling; the outline of the aneurism had become masked, and pulsation was very much less distinct. The pain was then very severe. Regarding these signs as indicating rupture of the sac and leakage, I at once tied the superficial femoral artery in Scarpa's triangle. The diffuse swelling in the popliteal space and around subsided. Immediate healing of the incision was obtained. The aneurism shrank, and when, a few weeks later, he left the hospital, it had become a small solid knot. When last seen, in the autumn of 1891, the aneurism remained cured, but his leg was slightly œdematous, and it had on it near the ankle a small patch of eczema.

In both these instances ligature of the artery was resorted to early, before any considerable leakage had occurred, and the results established the soundness of the plan of treatment.

I will now place before you a case illustrating the inappropriateness of proximal ligature when much leakage from the ruptured sac has occurred, and blood has extravasated into the tissues around. The case has an additional interest in that the plan of treatment was adopted by Mr. W. Bowman<sup>1</sup> in consultation with Sir W. Fergusson, whose experience in aneurisms was probably greater than that of any other surgeon of his day.

S. E., aged thirty-five, a gas-inspector, was admitted with popliteal aneurism into King's College Hospital, under Mr. W. Bowman, on December 9, 1861. The aneurism was already large. He said that about one month previously, whilst chatting with a friend, and resting at the moment on his left leg, another person, "in the manner of a school-boy's joke," struck him lightly with the hand on the back of his knee and made him stumble. The same evening his knee pained him, and on the

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<sup>1</sup> Later Sir W. Bowman.



following day he became aware of a slight swelling behind it. This rather rapidly increased, and, being attributed to inflammation, leeches were put on.

Pressure was applied by two Carte's tourniquets, alternately screwed down, from December 10 till January 6, when the knee swelled. At this time the aneurism was thought to have become a little smaller and slightly firmer. On January 7 he became feverish, his pulse rose to 120, and he complained of severe pain in the knee. January 8: Greatly increased swelling, which is certainly in part external to the aneurismal sac, and which now extends into the calf, and seems due to infiltration of the tissues by blood which has leaked from the sac. 10th: The swelling in the calf pulsates distinctly for a distance of four inches below the knee. It is hot, tender, and very painful. 11th: Calf very much ecchymosed. No pulsation discernible in tibial arteries at ankle.

After a consultation with Mr. W. Fergusson it was decided to tie the superficial femoral artery, which was done by Mr. Bowman in Scarpa's triangle. This was followed by immediate stoppage of the pulsation in the aneurism and in the diffuse swelling in the calf, but soon the sensibility of the surface of the leg was observed to have become blunted, and the cuticle quickly became blebbed. On January 15, gangrene being unmistakably present, the patient's condition being very critical, his leg was amputated. He succumbed a few days later.

On dissecting the limb a large heart-shaped aneurism was found, having on its superficial aspect the popliteal vein, the internal popliteal nerve, and the greatly expanded outer head of the gastrocnemius muscle. The sac had ruptured at its lowest point, and about fifteen ounces of blood were found extravasated between the superficial and the deep muscles of the calf. The artery communicated with the sac about three inches above the spot where the latter had burst, and for about the extent of one inch the arterial coats blended with and were indistinguishable from the sac. Immediately above, and also below this, the arterial coats appeared sound. The sac was plugged entirely with clot, peripherally laminated, tough, and decolorized, and centrally soft and black. (From note-book of W. H.)

An impression that in the vicinity of an aneurism the arterial coats not infrequently appear sound, and are, therefore, it might be supposed, in a condition in which the artery may be tied with fair prospect of success, has induced some surgeons to revive the old method of Antyllus, when rupture of the sac is suspected,—viz., to cut freely into it, tying the artery immediately above or below it. The late Professor Lyons adopted (in principle) this method in a case of inguinal aneurism, which he slit open, and then from the inner surface of the sac tied, as he thought, the external, common, and internal iliac arteries. The patient survived some time, but finally succumbed. At the necropsy it was found that not one of the arteries named had been enclosed by the ligatures, which simply encircled portions of sac and of the surrounding tissues. I mention this case to illustrate the difficulties which occasionally present themselves, baffling the most experienced operator, and not in detraction of the justly distinguished surgeon, for whom I entertained high respect. Where the normal anatomical relations are completely deranged by the entangling aneurism, the course of the artery or arteries implicated may be ascertainable only by passing into their tube a guide from the interior of the opened sac; and an accidental breach in this may be mistaken for the arterial aperture of communication.

I retain a vivid recollection of a case of large, ruptured femoral aneurism,

for which I assisted a former colleague, the late Campbell De Morgan, to tie the external iliac artery, and I have often since regretted that this operator did not boldly cut into the aneurism, and endeavor to secure the vessel above and below it. Temporary control of the common iliac artery would have made such operation possible without risk of instantly fatal hemorrhage, and this man might have been snatched from death, which occurred a few days later, from diffuse suppuration in the thigh, and gangrene. At the time of the operation the patient was so weak that exarticulation at the hip was rejected; it was also barred by the encroachment of the aneurism on the course of the external iliac artery.

The question of amputation is different in the case of a ruptured popliteal aneurism where extensive extravasation has occurred. Here amputation through the thigh will in most instances be preferable to other procedures.

There remain aneurisms to which none of the foregoing methods are applicable, such as those at the root of the neck. Some of you will recollect that an exceptional mode of spontaneous cure of aneurism given in text-books is the blockage of the arterial communication with the sac,—in fusiform aneurism, the exit,—or in sacculated aneurism, plugging of the single opening into the sac, or of the artery beyond this by a piece of clot detached from the sac and swept along by the blood-current, an event following thrombosis in the sac itself, and its complete obstruction.

The suggestion to imitate this natural accident was made by Sir William Fergusson very many years ago, but it met with little acceptance, as I submit rightly, because it involves a very high degree of risk. He derived the idea from an accident which happened while he was examining an aneurism of the right subclavian artery, perhaps also involving the innominate. I happened to be a bystander, and the occurrence made a lasting impression on my mind. I take the following narrative from my note-book :

R. R., aged forty-four, a mariner, of Boston, Lincolnshire, on August 4, 1853, was sent from the "Dreadnaught" hospital ship, into which he had been admitted a few days previously, to King's College Hospital, for Sir William Fergusson's advice about the treatment of a subclavian aneurism. It formed a conspicuous swelling above the inner half of the right collar-bone. The man said that for nine months his right arm had been getting weak. He had rubbed it with oils, and at last had gone to the "Dreadnaught," where the true nature of his disorder was discovered. It was elicited from him that on his way to the hospital he had "refreshed" himself in a "public" with gin; and then, fearing to arrive too late, he tried to make good lost time by running.

While Mr. Fergusson was examining the aneurism, a haggard expression flitted across the man's face; his hat, which he was holding in his left hand, fell upon the floor; then he slid down on a locker, and would have fallen if his hand had not supported him. His left arm was found completely paralyzed, and his left leg incompletely so; the left side of his face was blank and expressionless, and the right corner of his mouth drawn. He sighed, was restless, and he appeared not to realize where he was. Placed in bed, he tried to leave it. Next day (August 5) a slight return of power in the left arm was noticed. On the 8th he could move this arm



better, and the leg freely. He was on this day taken home. On June 20, 1854, the date when he was last seen, his left arm was found to have nearly regained its former strength, but its movements were slightly halting; they lacked evenness, and its muscles seemed slightly wanting in elasticity. The aneurism still pulsated, but less forcibly, and it was smaller. The right arm was wasted, and its wrist-pulse weak.

The risks attending "manipulation" are two-fold: unless very gentle, it may burst the aneurismal sac, and in an aneurism in the neck it may, as in this instance, cause cerebral embolism.

I cannot dismiss the subject of aneurism without cautioning you in every case to examine thoroughly the whole arterial system, since other aneurisms than that for which you are consulted may concurrently be present. In the following case of popliteal aneurism, cured by pressure, it is not improbable that a small aortic aneurism, of which the patient died six months later, may have already begun to form while the man was under my care.

D. O'B., aged forty-four, tailor, was admitted into Pepys Ward, in April, 1874, for a popliteal aneurism. He had been aware of a swelling in the ham for about six months, his attention having been called to it by pain occurring when he sat on his sewing-board, as customary with tailors.

It was treated by pressure on the femoral artery with Carte's compressor, which he was directed to slacken if the local uneasiness caused by it became inconvenient. In his anxiety to hasten his recovery, at night he screwed the pad down more tightly, and having taken one grain of opium, in a pill, he fell asleep, and did not wake until morning, when the excessive pressure was found to have caused a superficial slough. This led to discontinuance of the pressure during ten days, when it was recommenced, and a week later the aneurism was found to be solidified. In November of the same year he fell dead in a neighboring street. At the necropsy the cause was found to be a small aneurism of the ascending aorta, which had ruptured into the pericardium. The popliteal artery had shrunk to the size of an acorn, and was quite solid.

I have very recently had under observation a gentleman, aged seventy-three, with aneurism of the right popliteal artery, another in the right femoral artery, a double aneurism in the left popliteal artery, and one in the left femoral artery, and a slight bulging in the right external iliac. Such multiplicity as this, though happily very infrequent, is not unique. Some years ago, when on the active staff of the Moorfields Hospital, a man consulted me for defective sight of one eye. It was due to retinal hemorrhage. This led me to examine his arterial system, and he was found to have an aneurism in each popliteal, femoral, and external iliac artery, and a seventh of the aorta. He was found dead in the train on the same day, as he was returning home into the country. The aortic aneurism had burst.

# REVIEW OF MEDICINE.

## MEDICINE.

IN CHARGE OF JUDSON DALAND, M.D.,

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ASSISTED BY

JOSEPH P. TUNIS, M.D.,

Philadelphia.

**A Contribution to the Study of Hepatic Abscess.** (*American Journal of the Medical Sciences*, August, 1892, p. 125.) By William C. Dabney, M.D.

The subject of this paper was suggested to the author by several cases occurring in his own practice or seen in consultation, in which some of the most characteristic of the usual symptoms or signs of hepatic abscess were wanting when such an abscess was present, or else in which the symptoms were singularly suggestive of the affection, and yet no abscess existed. It is based principally upon the analysis of one hundred and eight cases collected from various sources. His conclusions are as follows:

1. That hepatic abscesses rarely occur as a result of injuries or diseases of the bone or other parts of the body, except those directly connected with the portal system of veins, or immediately adjacent to the liver.

2. Ulceration of the bowels is a common cause of hepatic abscess, but neither the morbid changes nor the symptoms are those of simple dysentery. It is probable that in most cases, at least, when the hepatic abscess is due to dysentery, the latter disease is amoebic in character.

3. An hepatic abscess may appear in two weeks from the commencement of the dysenteric attack, but the usual time is in from four to twelve weeks. It is impossible to say how long a time must elapse after an attack of dysentery before all danger of hepatic abscess is past.

4. Abscesses originating in the bile-ducts and those due to injuries of the liver itself seem to be of comparatively rare occurrence. When due to injury, the abscess usually appears in a few days.

5. Abscesses occurring in connection with general septicæmia or pyæmia are probably nearly always multiple in number and small in size, but in rather more than half of all other cases the abscess is single and comparatively large. Abscesses due to gall-stones, however, are usually multiple.

6. Aspiration occasionally fails to reveal an hepatic abscess because the



needle may not enter it, or the contents of the abscess may be too thick to flow through the needle.

7. There are no means of determining with certainty the presence or absence of adhesions in a given case; pain, tenderness, and œdema over the seat of the liver suggest the presence of adhesions, but are by no means certain proof of their existence. Even the up-and-down movement during respiration of a needle inserted into the liver is not a conclusive proof that adhesions do not exist, as was shown by a case recently under my care.

8. Of the symptoms and signs of hepatic abscess, pain, tenderness, and swelling in the hepatic region are by far the most important. Fever is present in a large proportion of cases, is intermittent in character, and, except in pyæmic cases, rarely rises above  $102.5^{\circ}$  or  $103^{\circ}$ . Jaundice and ascites nearly always denote the presence of dense adhesions or gall-stones. Dyspnœa and cough are frequently present.

9. It is doubtful whether the absorption of the contents of an hepatic abscess ever occurs; bursting is of frequent occurrence, the most usual direction being into a bronchus or the pleural cavity. Under expectant treatment, death occurs in a large proportion of cases before bursting.

10. With respect to treatment, free incision and drainage give far better results than any other method. The results of aspiration are rarely satisfactory, nor is aspiration itself entirely free from danger.

**The Treatment of Cholera.** (*New York Medical Journal*, October 29, 1892, p. 477.) By Dr. Hobart A. Hare.

Without discussing methods of preventive treatment, the author divides the disease into three stages. Usually the earliest symptom is some disturbance of peristaltic movement with or without pain, or the patient may be attacked with a sudden flux of the intestinal contents. If there is a history of bad or indigestible food having been taken, this foreign material must be gotten rid of by the use of castor oil or sulphate of magnesia. No purgative should be given, unless the history of the ingestion of bad food is most direct and clear. Opium should not be used either by the mouth or hypodermically, except in cases where the pain or cramps are so excessive as to absolutely require the drug. If opium is used it should be administered in the form of an enema in the proportion of an ounce and a half of wine of opium to two quarts of water.

Camphor is universally regarded as a most useful drug, tending at once to stop diarrhœa and to relieve the pain and cramps from the beginning to the end of the attack. Whether camphor exercises any germicidal effect on the cholera bacillus is not known. It is, however, a general systemic stimulant, and has been proved by wide clinical observation to have an extraordinary power in the control of all forms of serous diarrhœa, particularly true cholera. The use of salol may be recommended on rational grounds, as it has been shown to be particularly antagonistic to the bacillus of Koch.

Sulphuric acid is decidedly deleterious to the bacillus, as well as astringent, and is probably eliminated as a sulphate by the lower bowel. For the vomiting, excessive purging, cramps in the extremities, exhaustion, and collapse, the best results have been obtained by the employment of salol and camphor by the mouth, enteroclysis, and the use of hot baths. External heat is very important, as in the algid stage the patient dies of cold, and of internal congestion of thickened blood which the heart and vaso-motor system are unable to control.

The treatment of cholera by enteroclysis or the washing out of the bowel was first used by Cantanni within the last ten years. The results have been very favorable. This method consists in the slow irrigation of the large and small bowel by way of the rectum, by means of a solution urged on by the hydrostatic pressure of a fountain syringe. The solution contains as its chief constituents tannic acid, in the proportion of from one to five drachms to two quarts of water, and an ounce and a half of wine of opium. It has been found that tannic acid in the strength of one per cent. inhibits the spirillum of cholera in an hour and a half at 98.1°, and one-half of one per cent. in six hours seriously impairs its vitality. This treatment, therefore, contracts the leaking blood-vessels, stops the growth of the bacilli, prevents the absorption of toxins, acidifies the intestine, stimulates the nervous system, warms the body, prevents anuria, and avoids collapse.

After going over the literature of the subject very carefully, the writer believes that the best treatment for cholera to-day would be to give salol by the mouth in full doses, to give the patient water to drink acidulated with hydrochloric or sulphuric acid, and to resort at once to careful and thorough enteroclysis with tannic acid. Camphor and ether should be employed as diffusible stimulants when needed, and, if the blood became thickened by purging, hypodermoclysis of a normal salt solution should be resorted to.

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## THERAPEUTICS.

IN CHARGE OF ALEXANDER D. BLACKADER, B.A., M.D.,  
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**Dietary in Chronic Nephritis.**—(*La Médecine Moderne*, September 1, 1888.)

In a discussion on the most suitable dietary in chronic nephritis, which took place in the *Académie des Sciences*, Dr. Dujardin-Beaumetz said it was not the albuminuria, but the accumulation of toxic substances in the economy, that required attention. The indication is, therefore, to assist the elimination of these poisons, and to prescribe such a regimen as will most tend to limit their production. To this end severe mental and physical exertion should be avoided. As toxins develop in meat three days



after the death of the animal, he thought meats not absolutely fresh should be avoided ; also, for the same reason, fish, game, oysters, and cheese. Milk should form the most important part of the dietary, but it should be sterilized. He never saw the albuminuria increased by the administration of eggs. Meats should be well cooked. Those which contain a considerable amount of gelatin are the most suitable. Among the starches he placed a high value on rice. He thought it also desirable to limit, if possible, the formation of toxic substances in the alimentary canal by the exhibition of such intestinal antiseptics as benzo-naphthol and salol. Dr. G. Sée advised a diet somewhat as follows ; Milk, one litre ; white bread, two hundred and fifty grammes ; butter, fifty grammes ; sugar, fifty grammes ; soup, five hundred grammes ; coffee or tea, five hundred grammes ; macaroni, one hundred grammes. He thought drugs of little use to patients suffering from albuminuria. With the exception of caffeine and lactose, which sometimes prove very efficient, diuretics should be avoided. The digitalis group always proves injurious to the kidneys. Preparations of iron may add to the congestion present. Iodides and the salts of strontium and lime may render some service.

Report on the Physiological Action of the Active Principles of Urechites Suberecta. (*British Medical Journal*, June 18, 1892.) By Ralph Stockman, M.D.

This plant (nat. order *Apocynaceæ*) grows abundantly in the West Indies, where it is known as the "Savannah flower," or yellow-flowered nightshade. It is notoriously poisonous, and is supposed to have been the chief poison used by Obeah men. It has been stated that they could so administer it as to kill either immediately, or after the lapse of days or weeks. According to Bowréy (*Proc. Roy. Soc.*, 1878, xxvii. 309), the flowers and green parts are bitter and acrid. From the leaves he separated two active principles, urechitin and urechitoxin. Both are intensely bitter in solution. After the administration of urechitin, the symptoms noted were violent vomiting, general feebleness, and death in convulsions, evidently asphyxial. Dr. Stockman's investigations show that it is a muscle-poison acting especially on the heart, but also on the involuntary muscles of the intestines and bladder. After small doses, the heart-beats become slower and more ample, and a much higher blood-pressure is maintained. On increasing the dose, the beats become uneven and irregular, and the heart ultimately stops in systole. In frogs, in which an artificial circulation was maintained, the arterioles did not become contracted. Urechitoxin produces similar results, but is much less active.

From these experiments, it is evident that urechitin is a poison of a very active kind, which may be included in the digitalis group, though possessing some points of difference. It seems probable that, owing to its very highly-marked cumulative action, there may be some truth in the marvellous stories told of its poisonous properties, and that minute doses,

insufficient to produce immediate symptoms, can be given to either animals or man, so as to cause death suddenly after a more or less lengthened period of administration.

**The Action of Bromide of Ethyl.** (*Therapeutic Gazette*, September 15, 1892.) By E. Quin Thornton, M.D., and Edwin Meixill.

As a result of their study of the action of this drug on dogs and rabbits, they reach the following conclusions :

1. Its dominant action is on the respiratory, not on the circulatory, system.
2. Its depressant effect upon respiration is marked only when large and practically excessive doses are used.
3. When cardiac failure ensues, the failure is due rather to imperfect aeration of the blood than to the direct effect upon the heart.

In all their experiments they noticed a slowing of the pulse, with an increase, rather than a decrease, in the size of the individual pulse-wave. The slowing was attributed to a stimulation of the pneumogastriacs. In no case was there a sudden failure of respiration.

Attention is also called to the following facts. It does not irritate the upper respiratory tract. It is the most volatile of the anæsthetics usually employed, hence it is very rapidly thrown off from the system. It should be pushed actively during the few moments necessary to produce anæsthesia, and not administered in a highly diluted form for several minutes. Care should be taken to obtain a fresh and pure article. Air or bright sunlight slowly decomposes it.

They conclude that bromide of ethyl is a safe anæsthetic for minor or brief operations, and for the relief of the pains of labor, and, with care as to its purity, its employment is not pregnant with the danger some would have us believe.

**The Treatment of Delirium Tremens.** (*Brit. Med. Jour.*, August 6, 1892.) By Dr. Norman Kerr, F.L.S.—The author, believing delirium tremens to be the direct result of the cumulative specific action of alcohol on the cerebral tissues, aims in his treatment to eliminate the poison, leaving the healing power of nature to do the rest. To effect this elimination he finds the solution of acetate of ammonia very satisfactory. This is administered in drachm doses every hour at the first. At the same time, milk, beef-juice, broth, and coffee are administered freely and frequently. The use of alcohol, opium, chloral, or any of the narcotics is absolutely interdicted. The best and quickest hope of cure lies in natural exhaustion, inducing sound and refreshing sleep. The results of this method are claimed to be very satisfactory.



## NEUROLOGY.

IN CHARGE OF CHARLES W. BURR, M.D.,

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Report of a Peculiar Case of Chronic Ascending Poliomyelitis Anterior. (*New York Medical Journal*, June 25, 1892, p. 711.) By Dr. Charles E. Lockwood.

The affection began with pain in the right foot. On examination, some months later, weakness of the flexors of the foot and extensors of the toes, coldness of the leg, and slight atrophy of the anterior tibial muscles were found. There was no pain, no sensory, rectal, or bladder disturbances; knee-jerk was present. Faradic reaction was diminished and galvanic unchanged. A diagnosis of peripheral disease was made. Later, pain began in the left leg, and after some months complete palsy of the entire right leg, with reaction of degeneration, loss of power, and electrical contractility of the anterior tibial muscles of the left leg, and atrophy and loss of power of the thenar and hypothenar muscles of the right hand, with fibrillary twitchings and diminished faradic excitability. Chronic ascending poliomyelitis was now diagnosed. Death occurred about two years after the onset from implication of the cardiac and respiratory centres. Post-mortem examination showed degeneration in the crossed pyramidal tracts and in the rest of the antero-lateral columns; thickening of the walls of the blood-vessels in the gray matter; apparently atrophy of some of the nerve-cells of the anterior horns; atrophy of the motor cells of the pneumogastric nucleus and the spinal accessory cells, and slight sclerosis of the respiratory bundle.

An Address on the Origin and Seat of Epileptic Disturbance. (*British Medical Journal*, April 2, 1892, p. 693.) By Dr. Victor Horsley.

The author speaks only of idiopathic or general epilepsy. The phenomena of an attack are as follows: (1) Semi-voluntary movement,—for example, rising into a standing posture; (2) change in respiration, inspiratory spasm with cry and commencing asphyxia; (3) in the worst cases, simultaneous with (2), loss of consciousness (instantaneous); (4) muscular spasms, tonic stage; (5) muscular spasms, clonic stage; (6) exhaustion. It is a warrantable assumption that the loss of consciousness is due to some agency which abrogates the functional activity of the cortex cerebri. Now, what agencies can do this? They may be divided into intrinsic and extrinsic. By the latter we mean that if a narcotic substance be absorbed into the circulation and distributed in large doses to the cortex, the function of the latter would fail in proportion to the dose. But intrinsic agencies may be at work,—for example, by suitable excitation of a sensory nerve the functional activity of the cortex cerebri may be profoundly depressed.

The belief that the convulsion is due to cerebral anæmia is a groundless assumption, and, indeed, in convulsion due to absinthe hyperæmia is present. Further, in the convulsions experimentally produced by Küssmaul and Tenner there was not only anæmia but also asphyxia, and they were of a different type than the epileptic. Does the agency which produces the epileptic fit strike the whole of the neural axis at once or only one part of it? If the spinal cord be completely cut across no convulsion follows the injection of absinthe below the point of section, by which it is proven that although in the complete attack the spinal nerve-centres are being used at least as conductors, if not participators, they nevertheless have no power, when irritated by the absinthe, of initiating the convulsion, and it becomes, therefore, a definite conclusion that somewhere in the encephalon must be the starting-point of the epileptic convulsion, but where, it is as yet impossible to say. We can, however, say that if the cortical mantel is not the starting-point it is affected very early in the convulsion. The author concludes as follows: "Whatever be the point which the epileptogenous agency first attacks, we must conclude that the principal seat of the disturbance of a general or idiopathic fit must be the cerebral hemispheres and especially their cortical mantel. Further, that the condition of the cortex during the attack is one of congestion and not anæmia, and, finally, that in all probability this portion of the encephalon is actually the place of origin of the disturbance.

Report of a Case of Tumor of the Brain, with Autopsy. (*New York Medical Journal*, January 9, 1892, p. 41.) By Dr. Charles Stedman Bull.

Male, aged forty-five, with a history of syphilis, came complaining of a difference in the size of the pupils. On examination he seemed to have attacks of *petit mal*. Marked but not complete ptosis of the right upper lid and paresis of both internal recti. The left iris was moderately dilated and immovable, the pupil on this side being more than twice the diameter of the right pupil. With the right upper lid raised and the refractive error corrected, there was crossed diplopia, the right image being lower, and the two brought to a level by a prism of 2°. The internal recti were paretic, not paralyzed.

R. E.  $\frac{3}{200}$ : with oph.—D. 8  $\ominus$  cyl.+D. 2.50 axis 90° =  $\frac{20}{30}$ .

L. E.  $\frac{5}{200}$ : with oph.—D. 4  $\ominus$  cyl.+D. 0.50 axis 90° =  $\frac{20}{20}$ .

In the right eye there was moderate neuro-retinitis; the left was merely myopic. Field of vision and color sense normal. Under mercury and iodide the neuro-retinitis and paresis disappeared. Attacks of vertigo and left hemi-anæsthesia appeared along with epileptiform convulsions. Suddenly severe occipital pain (he had never before had headache) developed, he became delirious, and died in coma. The ante-mortem diagnosis was pachymeningitis. Another physician diagnosed multiple cerebral sclerosis. Post mortem a glio-sarcoma was found in the left frontal lobe. It involved



the corpus callosum and protruded from the roof of the left lateral ventricle.

**A Contribution to the Study of Bulbar Paralysis.** (*New York Med. Record*, April 30, 1892, p. 477.) By Dr. Herman H. Hoppe.

The author reports a case of bulbar paralysis in which post mortem no lesion was found, and studies it in conjunction with the cases of Wilks, Oppenheim, and Eisenlohr. The symptoms of the author's case were "bilateral ptosis, disturbance of deglutition and speech, weakness of muscles of mastication, paresis of vocal cords, disturbance of respiration and circulation, paralysis of the superior and inferior facial; no degenerative atrophy, no reaction of degeneration, weakness of the extremities." The condition can be differentiated from the chronic progressive atrophic form of bulbar paralysis (form of Duchenne) by the absence of atrophy or change in electrical reaction, by the involvement of the superior branch of the facial and the oculo-motor, by the rare participation of the hypoglossus, which is affected first in Duchenne's disease, by the presence of well-marked remissions and the rapid variation in the intensity of the symptoms, and by the absence of pathological changes. The author claims that these cases must be set apart in a special class. He suggests that the seat of the disease may be in the cortex, and the anatomical changes so fine that with our present means we cannot see them. He regards it as possible that the causation may be a ptomaine or toxic albumin poisoning.

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## PEDIATRICS.

IN CHARGE OF T. M. ROTCH, M.D.,

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ASSISTED BY

E. M. BUCKINGHAM, M.D.,

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**Contribution to the Study of the Spleen in Children.** (*Revue Mensuelle des Maladies de l'Enfance*, September, 1892.) By Paul Gaston, Interne of one of the hospitals of Paris, and Dr. Charles Vallée, Lauréat of the School of Medicine of Rouen.

In opening the abdomen of young subjects, the spleen is found covered by the colon and the stomach, and by the liver, which is always proportionately large during the first years of life. On pushing away these organs, the spleen is found resting by its inner aspect upon the anterolateral faces of the first and second lumbar vertebræ; outward it is bordered by a fold of peritoneum and by the insertions of the diaphragm in the ribs; above and behind by the diaphragm and its left pillar; above by the liver;

in front by the union of the transverse with the descending colon and by the greater curvature of the stomach, and below by the suprarenal capsule and the left kidney.

The weight and dimensions of the spleen vary greatly, both with age and with other conditions. The following rules are formulated by means of the statistics of Frerichs, combined with those of eighty autopsies made in the service of Sevestre:

1. The weight and dimensions of the normal spleen vary in accordance with the weights and dimensions of the body.

2. The maximum weight of the spleen in proportion to the weight of the body is at eight years.

3. The weight of the spleen at about a year old being in the neighborhood of thirty-two grammes, and the body weighing eight kilos, the increase in weight of the spleen should be ten grammes yearly, and that of the body in the neighborhood of fifteen hundred grammes, up to the age when the spleen has its greatest relative weight,—*i.e.*, eight years. After this period the spleen increases only about six grammes [yearly?]. It ceases to grow at forty-five years.

4. The increase in weight of the spleen seems more considerable than that of other organs. In adult life it weighs about an eighth as much as the liver.

The spleen depends for its support not alone upon its ligaments, but also upon the pressure of neighboring organs, thus it is somewhat movable, and is occasionally displaced. Coughing, meteorism, dilated stomach, emaciation, etc., all have a more or less temporary influence upon its position. With an imperfectly-developed diaphragm it may even be in the thorax. The child's spleen is somewhat more prismatic in form than is that of the adult, though not so much so as in the case of the embryo. It is of a deeper red color in young children. The consistence is firm, and in general there is little peculiarity of structure, except that the lymphatic cells of the pulp are rather large. Contractility and elasticity permit rapid changes of size as in later life.

The writers state that they have always found large spleens to be accompanied by congestion of the lymphatic ganglion, and they call attention to Claude Bernard's demonstration that removal of the spleen leads to engorgement of the lymphatics. While the physiology of the spleen is still obscure, yet it seems to have a place in digestion, in blood formation, and in the destruction and assimilation of bacteria. Passing over the discussion in the paper of the former points, we come to the relations of the spleen to bacteria. As early as 1887 Metchnikoff had made observations on the destruction of "spirilles vivantes" during the intermissions of intermittent fever. Burdach, and afterwards Soudakewitch, demonstrated that animals if deprived of the spleen die more readily of infection, and that in them the pathogenic agents swarm in the blood. It seems, then, that the spleen acts as a guard to the blood, and therefore to the tissues.



The writers state that hypertrophy of the spleen is found to be rather the rule at the autopsies of children dying of variola, rougeola, scarlatina, purpura, diphtheria, typhoid, typhus, yellow fever, intermittent fever, cholera, tuberculosis, ulcerative endocarditis, syphilis, rachitis, leucæmia, and athrepsia.

For clinical examination the writers assert that inspection is rarely of use, percussion is often misleading, and palpation is alone reliable. Percussion is subject to error, owing to the presence of the liver, the stomach, or the colon, or of emphysema. They examine the patient in a sitting position, with the left arm raised. To determine the extremities of the spleen they percuss in a vertical line from the axilla to the anterior superior spinous process of the ilium. To determine its lateral borders they percuss horizontally from the nipple, and from the umbilicus to the spine. Percussion upon the living subject has often seemed to show a large spleen where the autopsy has shown it not to be enlarged, and has likewise failed to show enlargement which the autopsy proved to exist. Therefore, during life they consider as enlarged only those spleens that can be felt by the fingers beneath the false ribs, the patient being on his back, the knees bent, the head moderately bent forward, and the muscles lax. It is not even then possible to say that the spleen is not enlarged merely because it is not felt. The significance of an enlarged spleen when it is felt is of great importance, and this notwithstanding that the spleen may be somewhat enlarged by a simple disorder.

In general (1) a large spleen means either bad nutrition or an infectious disease; (2) demonstration of an enlarged spleen in a child is of more value for purposes of prognosis in case it continues to enlarge or diminishes than for purposes of diagnosis.

**Three Cases of Thrombosis of the Superior Longitudinal Sinus.** (*Archives of Pediatrics*, September, 1892, p. 713; *Revue Mensuelle des Maladies de l'Enfance*, Paris, 1892, x. 105.) By Du Pasquier.

Three cases with autopsies reported, in which the diagnosis had been made during life, of the formation of a clot. The author states it as his belief that from certain symptoms and from the pathological conditions present with them—at the end of a cachectic disease, for example—we may to some extent ascertain the formation of a thrombus. The convulsions are late, not clonic and affecting the limbs; but rather the state is of tonic rigidity, established progressively and affecting the legs, arms, neck, and the whole trunk. Perhaps the limbs are bent and rest in flexion. The whole body may seem to roll itself up and be reduced in size. The extremities of the upper limbs are oftenest the seat of tremors, rapid and of little extent. The face alone seems to be attacked by true convulsive movements. There are rhythmical movements of the lips, affecting the orbicularis, but not the masseters. The mouth opens and closes alternately in very rapid movement. The orbicularis of the eye is the seat of analogous

movements. Strabismus was not seen. He concludes that the succession of these symptoms, somnolence, coma, tonic rigidity, attitude fixed and retained in extension or flexion, rhythmical movements of the mouth, blepharospasm, and tremor of the fingers, when they occur late in the course of cachectic diseases in children, may give ground for the supposition of the formation of a thrombus of the superior longitudinal sinus.

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## SURGERY.

IN CHARGE OF B. FARQUHAR CURTIS, M.D.,

Surgeon to St. Luke's Hospital and to the New York Cancer Hospital.

**Dangers of the Reduction of Strangulated Hernia by Manipulation.** (*Lancet*, August 30, 1892, p. 410.) By W. H. Bennett, F.R.C.S.

Bennett reports two cases of accidents supervening during taxis for strangulated hernia, but saved by proper treatment,—suture of the bowel. He describes the method of applying taxis properly: warm the hands; press upon the parts only with the soft pads of the finger-tips, never with the ends; support the neck of the sac with the other hand; use gentle, firm, regular pressure, and do not continue the manipulation more than five minutes. Taxis should be limited to hernia in which there is an impulse on coughing, or at least to very recent cases in which there is but slight tension when no impulse is to be detected.

**Perforative Peritonitis following Rupture of the Bowel during Taxis, cured by Laparotomy and Suture.** (Perforationsperitonitis durch Ruptur des Darmes bei der Taxis. Hernio-Laparotomie. Heilung. *Wiener klin. Wochenschr.*, 1892, p. 520.) By Dr. R. Frank.

Frank reports a case of rupture of the bowel during taxis, followed immediately by violent symptoms of peritonitis, in which operation was performed four and a half hours later, by an incision through the sac and then obliquely inwards from the ring to the median line. A transverse slit was found in a loop of gut, four millimetres (one-sixth inch) long, which was closed by Lembert sutures, and the abdominal wound closed without irrigation or even sponging out, on account of the unfavorable surroundings. Although there was considerable exudate, prompt recovery ensued. The case is interesting for this reason as well as others, showing what the peritoneal membrane can accomplish if it is only protected from further infection by the closing of the wound in the bowel.

**Notes on a Case of Excision of the Rectum.** (*Lancet*, June 4, 1892, p. 1235.) By W. H. Brown, F.R.C.S.

Brown reports a successful case of resection of the rectum by a modification of the sacral methods generally employed. He makes a quadrangular



flap of the soft parts with base above—at the level of the third sacral vertebra. The sacrum was divided transversely at the fourth vertebra, and the tip turned down as a bony flap. The rectum was then excised. The author thinks he obtained more room in this way than with the ordinary Hochenegg trap-door flap.

Operative Treatment of Certain Ankyloses of the Wrist. (*Traitement opératoire de certaines ankyloses du poignet. Gazette des hôpitaux*, 1892, Sept. 6, p. 963.) By Dr. Guérmonprez.

In two cases Guérmonprez has restored the power of rotation to the forearm by resecting six centimetres of the lower end of the ulna. The functional results were perfect, but he found that they could not be obtained with less sacrifice of bone. He secured a fibrous union of the ulna and radius by leaving the periosteum at the end of the former *in situ*.

Permanent Subcutaneous Suture of the Patella for Recent Fracture. (*British Medical Journal*, February 27, 1892, p. 425.) By A. E. J. Barker, F.R.C.S.

Barker has tried, in four cases of simple fracture of the patella, a subcutaneous suture of silk, passed with a needle on a handle. He first passes the needle from below upwards through the joint under the bone, threads it and draws out the thread, then reintroduces the needle through the same puncture, but passes it under the skin in front of the bone to the same point above, threads it with the other end of the silk, withdraws it and ties the two ends in the lower puncture, where they sink under the skin. The method is simple, but makes no provision for removing fascia, etc., interposed between the fragments, and of course exposes to the same dangers for the joint in the way of infection as any other suture.

A New Method of Excising the Two Upper Portions of the Rectum and the Lower Segment of the Sigmoid Flexure of the Colon. (*Lancet*, August 27, 1892, p. 473.) By H. W. Maunsell, M.A., M.D.

Maunsell describes a new method, apparently as yet untried clinically, for removing the upper part of the rectum and even the lower part of the sigmoid flexure. The sphincter ani is divided posteriorly and a speculum inserted up to the segment to be removed. A median laparotomy is done, and the peritoneal attachments of the rectum are divided close to the bowel, without wounding the vessels, with a probe-pointed pair of scissors. By tapes passed through the bowel-wall below the seat of disease and drawn out by an assistant below through the speculum, an invagination of that part of the bowel is produced, and the operator continues dividing the peritoneal attachments within sufficiently to allow that segment to be drawn out of the anus. Pins are then passed through the two folds of the bowel-wall well clear of the disease; the affected portion is then cut away, and the

two layers of bowel-wall secured to each other in their entire circumference by interrupted sutures passed through the whole thickness of the wall,—*i.e.*, no separate peritoneal suture. A very ingenious wound and intestinal retractor is described, consisting of a wire frame covered with wire gauze, which is placed inside of the abdomen, the intestines having been pushed above it, and held in place by two sutures passed through the abdominal wall laterally, and secured to two claw-shaped retractors which clutch and retract the edges of the abdominal wound.

The method is ingenious, but rather complicated, and would appear to involve considerable danger to the vessels in the meso-rectum. The use of transfixing sutures of the bowel-wall without peritoneal sutures back of them is also very faulty, involving great danger of infection from the bowel along the suture tracks.

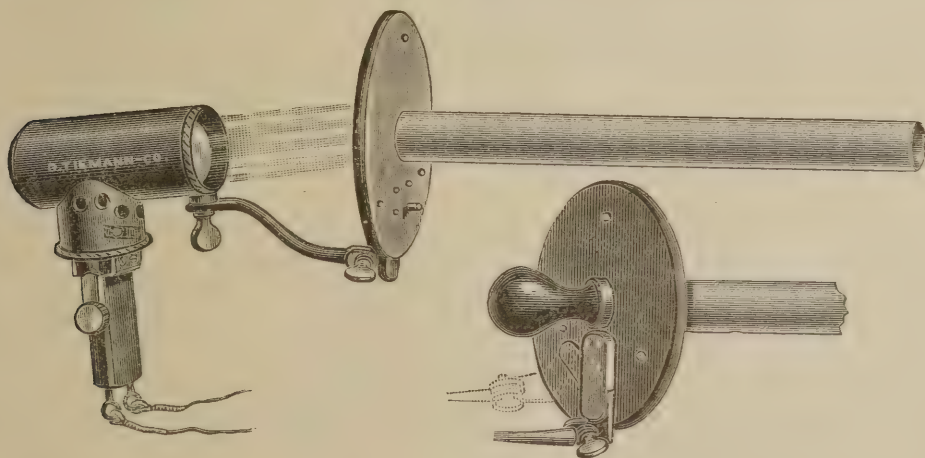
## GENITO-URINARY SURGERY.

IN CHARGE OF WILLIAM K. OTIS, M.D.,  
New York.

The "Perfected" Urethroscope.—By W. K. Otis.

In spite of the great advances made by the introduction of the electric lamp as the source of illumination, the modern urethroscope still possesses several decided disadvantages. It is heavy, somewhat complicated in construction, and expensive.

To overcome these objections, I have devised an instrument on an entirely different principle from that of former urethroscopes, using a lens as a condenser instead of the reflected light from a concave mirror.



This instrument consists of a metal tube or cylinder, one inch and a quarter in length by one-half inch in diameter, closed at one end. One-quarter of an inch from the open end of this tube is a plano-convex lens, so arranged that it may be easily removed for cleaning. On the inferior surface near the closed end of the tube an elbow is let in, one-quarter of an



inch in length and one-half inch in diameter, through which the source of illumination (a small incandescent electric lamp) is introduced, a row of holes being bored at its base to allow of ventilation.

The handle of the instrument consists of a piece of hard rubber, one inch long by one-half inch wide, the electrical connections running through it to the lamp which is placed on top. This handle fits into the elbow by means of a bayonet-joint, bringing the lamp immediately behind the plane side of the lens. A thumb-screw "switch" in the handle places the lamp under control, so that it may be turned on or off at pleasure.

The instrument is attached to the urethroscopic tube by means of a stout wire one inch and a half in length, with hinged joints at each end which swing in opposite directions and are furnished with set screws, thus allowing the instrument to be put in any position, though when once adjusted it will rarely be necessary to change it. If the ordinary urethroscopic tube is used, the distal end is provided with a simple ring sliding-joint; but as I greatly favor the use of the tube devised by Dr. Hermann G. Klotz, I have adapted the instrument to this form of tube by placing at the distal end a small, flat foot, at the outer extremity of which is a smooth pin. This pin fits into a hole in the tube plate, and on revolving the instrument a quarter-circle the foot swings under a shoulder riveted to the plate, and is securely fastened. This joint is firm and easy of manipulation, readily allowing the illuminator to be attached or removed at any time during the examination.

When the instrument is in position and the lamp illuminating, a strong beam of light is thrown directly down the urethroscopic tube, and the urethral mucous membrane more easily and clearly observed than with any other form of urethroscope with which I am familiar.

The advantages of this instrument are:

1. The exclusion of all extraneous light, the presence of which is a most annoying fault both in the urethroscope of Leiter and in my own improvement on it.
2. A very much more ready access to the urethral field, both to the eye and for instrumental applications.
3. Increased illumination.
4. By abandoning the funnel and sliding-joint, one inch and a half in distance is gained from the source of illumination to the distal end of the urethroscopic tube, increasing the illumination and allowing the eye to be placed just so much nearer the mucous membrane to be examined.
5. Its extreme compactness and lightness, weighing *less than one ounce, even when constructed of brass*.
6. Its great simplicity of construction, which should insure a moderate cost.

Treatment of Cystitis by means of Intra-Vesical Injections of an Ethereal Solution of Iodoform in Oil. (Traitement des cystites au

moyen d'injections intra-vesical d'iodoforme ethere huileux. (*Ann. d. Mal. d'Org. Genito-Urin.*, August, 1892.) By Dr. Okev-Blom, Finland.

In the treatment of both acute and chronic cystitis the author advocates the use of a solution consisting of one gramme of iodoform dissolved in seven grammes of sulphuric ether, to which seven grammes of olive oil are added. This is injected into the bladder and allowed to remain as long as possible. One gramme of iodoform is completely dissolved in five grammes of sulphuric ether, the additional ether being used to compensate for evaporation. The oil is added to modify the irritation produced by the ether on the vesical mucous membrane. During treatment the patient should be required to abstain from beer and all other fermented and alcoholic liquors, and live as much as possible upon a milk diet.

Of the cases treated, the acute, all of which were of gonorrhœal origin, showed the greatest improvement. In regard to the chronic cases, it is rather difficult to draw a parallel between this method and the use of an iodoform emulsion, but from a purely theoretical stand-point the solution of iodoform in ethereal oil ought to act more promptly and efficaciously, applied to an organ like the bladder, where remedies can only remain in contact with the diseased areas for a limited time.

It is not claimed that this is a universal remedy for cystitis, but in many cases (eleven out of twelve) it acts in a very efficient manner. It must be decided in each individual case as to the amount and the frequency of the injections, whether they are to be given every day, or every other day, or only at intervals of several days. Internal medication and strict diet will be found to greatly enhance this method of treatment.

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## ORTHOPÆDICS.

IN CHARGE OF REGINALD H. SAYRE, M.D.,

Assistant to the Chair of Orthopædic Surgery, Bellevue Hospital Medical College, New York.

**Paralytic Luxation of the Hip-Joint.** (*Med. Press and Circular*, August 17, 1892.) By Professor Albert K. K. Hofrath.

The paralysis may be complete or partial in these cases. When partial, as in the cases reported by Bradford, the constant action of those muscles not affected by the cord lesion tends to draw the head of the bone out of the socket, as it is not antagonized, as in health, by the opposing set of muscles. In complete paralysis there is such general relaxation around the joint that the capsular ligament becomes stretched by the weight of the limb to such an extent that spontaneous luxation may take place during movements of the trunk. The author does not think there is any necessity to suppose a pre-existing distention of the joint to account for the luxation, and says, in his own case, that he found the joint dry at the time of operation. He also believes that these paralytic dislocations are not de-



pendent on a congenital luxation, but take place subsequent to the birth of the child.

In some cases where there is a helpless, dangling leg, it may be made to support the body by cutting down on the hip-joint, removing part of the articular surfaces of the femur and acetabulum, and fastening the raw surfaces together. It may be necessary, as in the case reported by the author, to resect at the same time the knee-joint, either to correct deformity or cure a dangling paralyzed leg, or both. In the case reported the man who had been paralyzed since childhood was able to walk after the operation by means of a Lorenz apparatus fitted to his leg.

**Dislocation of Cervical Vertebrae.** (*Boston Med. and Surg. Journal*, September 15, 1892.)

Dr. G. L. Walton, before the Suffolk District Medical Society, reported cases of dislocation of cervical vertebrae, of which he had seen fourteen. In unilateral dislocation the position of the head resembles that of torticollis resulting from spasm of the sterno-mastoid; the point of difference, however, is that the muscle is lax on the side which would be affected in torticollis, while that of the other side is put on the stretch, as are also the other muscles of the neck. In regard to reduction, Dr. Walton has never found forcible traction of benefit, whereas spontaneous reduction has frequently taken place.

Dr. M. H. Richardson had made studies on the cadaver bearing on this point. He found that in dislocations produced artificially, traction short of the amount necessary to tear off the intra-vertebral disks and rupture the ligaments was unavailing, but that reduction could be made by extending the head in a direction between the backward line and the lateral one on the side of the convexity, the lateral processes and lamina furnishing a fulcrum by means of which the misplaced articular process was readily lifted up, after which a slight rotatory motion completed the reduction.

**A New Operation for Paralytic Talipes Valgus, and the Enunciation of a New Surgical Principle.** (*New York Medical Journal*, October 8, 1892.) By B. F. Parish, M.D.

The author was led to practise his operation for the relief of paralytic talipes valgus by noticing in many cases that while the tibialis anticus was completely paralyzed, the extensor proprius pollicis was healthy, and it occurred to him that, by attaching the tendon of the paralyzed muscle to the belly of the healthy one, the latter would be enabled to do the work of the former in addition to its own. In the case described an incision was made over the space between the tendons of the anterior tibialis anticus and extensor proprius pollicis muscles, extending from the annular ligament, three or three and a half inches upward. Both the tendons were found and isolated. The tendon sheaths were cut away, and the foot inverted and extended so as to shorten the tendon of the tibialis anticus, and pull down

the tendon of the extensor proprius pollicis. The opposing tendon surfaces were then freshened with the knife, and sewed together with a catgut suture for a space of an inch or more, and the wound closed. The foot was then moulded into a proper position, and retained there by a plaster-of-Paris bandage applied over an antiseptic dressing and worn for a month.

The author goes on to say, "*the important principle of grafting tendons, and having a live muscle do the work of a dead one, is that which I wish particularly to establish in this article.* . . . This live muscle may also do its own work in addition to that of its neighbor, or it may have its original function transferred to still another muscle. In case the deformity is not readily reducible, it should be made so before any operation is done upon the tendons."

## OBSTETRICS AND GYNÆCOLOGY.

IN CHARGE OF JOHN M. KEATING, M.D., LL.D.,

Colorado Springs, Colorado; Fellow of College of Physicians of Philadelphia; Gynæcologist (Emeritus) to St. Agnes's Hospital, Philadelphia; formerly Visiting Obstetrician to the Philadelphia Hospital (Blockley); Editor "Cyclopædia of the Diseases of Children," etc.

**The Marriage Question, from the Stand-point of Gynæcology.** (*British Gynæcological Journal*, August, 1892.) Inaugural address of Professor Simpson, President of the British Gynæcological Society.

This address is extremely interesting, showing that mortality is higher among the unmarried than among the married, that the tendency to suicide is much less among the married than among the unmarried, that the tendency to insanity is much less among the married than among the unmarried, and that the tendency to criminality is also affected in the same way. He goes on to discuss the physiological conditions of marriage, communal marriage, polyandry, polygamy, monogamy, dangers of infraction of law, and other matters.

**Diagnosis of Ovarian Dermoids from their Situation.** (*Centb. für Gyn.*, 1892, No. 31.) By H. W. Fruend.—The author states that Küster's observation that dermoids lie in front of the uterus, and when an attempt is made to push them away they immediately spring back to their former position if released, applies to all ovarian tumors, and not to dermoids alone.

**The Treatment of Leucorrhœa.** (*Archives of Gynæcology*, September, 1892.)—According to the *Journal de Médecine de Paris*, the following solutions are recommended by Gallois, in the treatment of leucorrhœa.

R Sulphate of copper, gr. xv;  
Water, ℥viii.—M.

Sig.—Make a solution, and use as an injection in chronic leucorrhœa.



Another useful formula is—

R Salicylic acid, gr. xc;  
Glycerin, ℥iv;  
Water, Oii.—M.

Sig.—Dissolve the salicylic acid in the glycerin by the aid of heat, and add water.

This amount is used in six injections, one being given each day in vaginitis due to irritation or inflammation about the uterus and vulva.

Still another formula is one containing—

R Chlorate of potassium, ℥iv;  
Wine of opium, ℥iiss;  
Tar-water, Oi.—M.

Sig.—Make a solution, and in half a pint of hot water place two or three large tablespoonfuls of this solution, and, after mixing thoroughly, employ as an injection in fetid leucorrhœa.

As an astringent injection the following may be employed :

R Powdered catechu,  
Powdered myrrh, āā gr. lxxv;  
Lime-water, ℥viii.—M.

Sig.—Filter after prolonged maceration.

Give this injection several times a day, as long as the necessity continues. Or the following may be employed :

R Chlorate of potassium, ℥i to ℥iii;  
Wine of opium, ℥iiss;  
Tar-water, ℥viii.—M.

Sig.—Make a solution, and add two or three dessertspoonfuls to a quart of hot water, employing as an injection night and morning, particularly in cases of leucorrhœa associated with endometritis, polyps, or fibroids. The duration of the injection should be about five or six minutes.

In cases of leucorrhœa or vulvitis in young girls in which there is no true vaginitis or metritis, and the inflammation about the vulva is to be combated, the treatment should be both local and general. The parts are to be washed carefully with astringent decoctions or with a weak solution of Goulard's extract. After this has been done, the washing may be carried out by weak solutions of bichloride of mercury, and by baths and lotions. In other cases carbolic acid, in the strength of five parts to one thousand of water, may be employed; and, finally, in obstinate cases, a solution of nitrate of silver, in the strength of three grains to the ounce, may be resorted to. In the intervals between the bathings, the parts are to be separated by lint impregnated with a weak solution of carbolic acid or covered with red precipitate ointment. The internal medication consists in the use of cod-liver oil with quinine, or, in scrofulous children, the use of arsenical preparations.

In place of these lotions, leucorrhœa may be treated by powders, such as the following :

R Powdered starch, ℥xii;  
 Subnitrate of bismuth, ℥iiss.

Sig.—Mix very thoroughly, and dust the vagina with this powder.

In other cases a solution made up as follows will be equally advantageous :

R Carbolic acid, gr. xv;  
 Alcohol or cologne, ℥i;  
 Water, ℥iiss.

Sig.—Mix, and by the aid of the speculum, once or twice a day, insert tampons moistened with this solution, and practise astringent injections.

**Hemorrhoids; Anodyne Ointment.** (*Deutsche Med. Zeitung*, No. 19, 1892.)

R Cocaine mur., gr. xx;  
 Morph. sulph., gr. v;  
 Atrop. sulph., gr. iii;  
 Tannin, ℥ii;  
 Vaseline, ℥v.—M.  
 Fiat ung.  
 Sig.—Apply after each stool.

**Registration of Still-Born Children.** (*British Gynæcological Journal*, August, 1892.) By Robert Rentoul.

In the course of this paper, the author states that out of 890,937 births in England and Wales, 38,412 were illegitimate, or about 1 in every 22.

**Pruritus Vulvæ.** (*Hare's System of Practical Therapeutics*, vol. iii.)  
 —This symptom is so distressing that we will call attention to a few matters recommended in this work for its treatment. Of course, it may be a symptom of various things, but very often its treatment will have to be empirical. Nitrate of silver is recommended, at times using even the solid stick to the affected area.

Cocaine, four- to ten-per-cent. solution, for local use during paroxysms.

Carbolic acid, five- to ten-per-cent. solution or ointment. Skene recommends carbolic acid and tincture of iodine in equal parts, used by atomization.

Also iodoform, saturated solution in ether, applied with atomizer. [Our own experience has been that Goulard's solution, with one-third laudanum, applied with hot water, is the most serviceable of any for ordinary cases,—the mucous membrane kept apart by means of cloths saturated with this lotion. In the mean time, hot vaginal irrigation can be occasionally used of a one to four-thousand sublimate solution in hot water.—J. M. K.]



## OPHTHALMOLOGY AND OTOTOLOGY.

IN CHARGE OF J. E. HARPER, A.M., M.D.,  
Chicago, Illinois.

**Pre-operative Treatment of Squint.** (*The American Practitioner and News*, July 30, 1892.)—Dr. W. B. Meany says that if a convergent squint which developed at an early period of life is operated upon without first submitting the patient to tonic treatment, orthoptic exercises, and especially the stereoscope, or the use of other well-known measures to further diminish the squint, the return of the original troubles may be expected, and an over-correction resulting in a divergent squint is almost a certainty. He reports a case in proof of his conclusions.

**Resection of the Optico-Ciliary Nerves.** (*Virg. Medical Monthly*, July, 1892.)—Dr. J. J. Chisholm advocates this operation for the relief of pain in well-appearing and painful eyes on which most surgeons perform enucleation. He describes his method of procedure as follows: A general anæsthetic is always administered. "For neurotomies, which are quick operations, I use the bromide of ethyl, because of its prompt and evanescent action. By a very few full inspirations of the ethyl ether, during a period that does not exceed one minute of time, the patient is completely anæsthetized. A speculum keeps the lids apart. A fold of conjunctiva is caught up by the forceps, and is cut across in such a way as to make a horizontal incision which extends from the lower and inner border of the cornea to near the caruncula. It lies parallel with the lower border of the inner rectus muscle, and is but little more extended than the conjunctival incision for squint operations. The application of the points of the scissors in this orifice opens the capsule below the rectus muscle. An instrument terminating in two small hooks is passed into the depth of the wound and planted well back in the sclerotic. By drawing upon this instrument, the eyeball is rotated forcibly outward, which brings the optic nerve, with its ciliary-nerve surroundings, within easy reach. The curved enucleation-scissors is now introduced through the wound into the socket directly behind the eyeball. With its closed blades playing the part of a probe, the resistant optic nerve is sought. When it is found, by drawing the scissors forward until the nerve escapes, then opening the blades widely, the optic nerve, with its entire surroundings, can be caught in the jaws of the instrument. The resistance made during the section is proof that the nerve has been seized; and if the scissors have been properly manipulated, it ensures the complete division of the entire cluster of nerve-cords. As an evidence of this, the closed scissors can now move freely, as a probe, in all directions, behind the eyeball, without meeting any impediment. To ensure this complete severance needs some familiarity with the resistance which the optic nerve makes to the section. The scissors must

not be allowed to slide backward during the section, but the jaws of the instrument must be held firmly against the resisting body. The operation is now completed, and the scissors are withdrawn."

**Treatment of Granular Conjunctivitis.** (*Le Courrier Médical*, June 4, 1892.)—Chevallereau applies cocaine, everts and holds the lids apart with the left hand, attaches a compress soaked in a one to five-hundred sublimate solution to the right index-finger, and with it makes firm and vigorous friction over the entire conjunctiva of the lids and the canthi. Considerable hemorrhage usually follows the first application. If corneal ulcers are present, atropine and the yellow oxide of mercury ointment are also used. The results are good.

**Jequirity a Safe Remedy.** (*So. Cal. Practitioner*.)—Dr. William D. Babcock expresses the belief that in suitable cases of trachoma and pannus jequirity is so safe, its use, under proper instructions, can be intrusted to the laity. He applies the impalpable power of the bean to the under surface of the upper lid, having previously dilated the pupil with atropine. The resulting inflammation is treated in the usual way. Ordinarily he directs the powder to be applied, and does not see the patient again till the inflammation subsides.

**Aural Complications in Influenza.** (*Medical Fortnightly*, July 1, 1892.)—Dr. William D. Babcock summarizes these as follows: In the aural complications of influenza there is a peculiar inflammation involving mostly the middle ear and mastoid, and characterized by intense hyperæmia and swelling of the mucous membrane; a congestion, which, while rapid in its development, is slow in its retrogression, and shows a tendency to hemorrhage.

The consequent discharge may be abundant and purulent, but is often scanty, and may remain sero-sanguinolent during its whole continuance.

**Traumatic Palimptosis alternating with Proptosis.** (*Medical Record*, May, 1892.)—Schwarzschild reports the following. A coachman, twenty years old, fell when eight years of age, striking the forehead violently upon the ground. The wound promptly healed with a small scar just to the temporal side of the right supra-orbital notch. There is an abscess of the fatty cushion of the orbit. The globe is of normal size, the palpebral fissure of four millimetres larger than that of the opposite side. Vision of this eye is normal, and fundus appears normal. There is no pulsation or bruit over this orbit.

When the patient bends forward, the globe, which in the erect position is six millimetres deeper in the orbit than its fellow-eye, falls forward so as to be twelve millimetres farther forward than in the erect position. While in this position the ocular conjunctiva appears slightly congested, but the



congestion immediately fades out when the erect position is regained and the condition of palimptosis takes the place of proptosis. No similar case could be found reported.

## DISEASES OF THE LARYNX, NOSE, AND SURROUNDING STRUCTURES.

IN CHARGE OF J. PAYSON CLARK, M.D.,

Physician to the Throat Department of the Boston Dispensary; Assistant Physician for Diseases of the Throat, Massachusetts General Hospital.

**Primary Laryngeal Erysipelas.** (*Deutsche Med. Wochensch.*, August 25, 1892.)

Dr. Oscar Samter reports the following case: Without there being any signs of disease in the mouth or throat, there appeared suddenly, beginning with a chill, in a middle-aged man an acute, superficially extending laryngitis. Although the larynx was extraordinarily roomy, in twenty-four hours tracheotomy was necessary. Twenty-four hours later there appeared, without another chill, spreading from the tracheotomy wound, a rapidly-extending erysipelas of the skin. These facts point with the greatest probability to this being a case of primary laryngeal erysipelas, from which the erysipelas of the skin extended. These are rare cases. The infection may be carried by the air or by food to microscopic defects in the mucous membrane.

**Forms of True Diphtheria which Simulate Simple Catarrhal Angina.** (*N. Y. Med. Jour.*, August 27, 1892.) By Henry Koplik.—This paper is based on a study of thirty-three cases, in all of which very careful bacteriological examinations were made. They are divided into groups presenting certain characteristics. The first group of six cases are those in which at first or during the whole course of the disease no membrane was seen. In three of these cases, although resembling closely the others clinically, only streptococci were found. The three cases of group two showed a pultaceous yellow mass on the tonsils. In only one of these were the Loeffler bacilli found. The third group shows that even where follicular appearances are well marked, diphtheria of a virulent kind may coexist. The fourth group, in which the tonsils show a necrotic loss of tissue, may or may not be true diphtheria. In the fifth group the spots on the tonsils appeared like embedded yellow-pink surfaces. One of these was true diphtheria, two were not. There were ten doubtful cases, which proved to be simple angina. In speaking of the methods of experimentation, etc., with the Loeffler bacillus, the writer mentions the pseudo-bacillus of Hofman, its clinical significance, and its relation to the Loeffler bacillus. This pseudo-bacillus is innocuous to guinea-pigs. The writer has seen four

cases in which this bacillus alone was found. The clinical features of these cases were not distinctive.

The author summarizes as follows: "In these studies we have confirmed the fact that forms of diphtheria exist which run their course without the manifestation of any visible membrane, and in which at any time in the course of the disease the Loeffler bacillus can be isolated in the fauces and is a source of danger to others. It has also been shown that cases exist in which the local manifestation of diphtheria is not characteristic, and that such forms of diphtheria resemble very closely simple forms of angina. Clinically it is impossible, from simple inspection, to sift the cases of non-characteristic, true diphtheria from other forms of non-diphtheritic angina." Satisfactory bacteriological tests are possible only in a hospital or clinic. In private practice all doubtful cases must be properly isolated.

**Intubation Versus Tracheotomy.** (*Med. News*, August 27, 1892.)—Dr. R. W. Lovett, in this paper, compares the results obtained in three hundred and twenty-seven cases of tracheotomy for croup performed at the Boston City Hospital from 1864 to January, 1887 (only thirty of these operation were done before 1880), with those obtained in three hundred and ninety-two cases of intubation at the same hospital between December 31, 1886, and January 1, 1891. Most of these cases were severe, so that the percentage of mortality is not a low one. The conditions in the hospital since 1880 have been, for the most part, constant, and these conditions are as favorable as possible, so that the results of either operation cannot be ascribed to unfavorable conditions. Of the tracheotomy cases, two hundred and thirty-two died and ninety-five recovered (percentage of recovery 29.05). The one hundred and thirty-nine tracheotomies which were done during the period in which intubation was the routine treatment cannot be taken into account in any way, as during that time tracheotomy, as the old and more tried operation, was adopted as a last resort in the severest cases. Of the cases of intubation, three hundred and twelve died and eighty recovered (recovery percentage 20.41). The paper shows that accidents during intubation are much more common than during tracheotomy, and that the death-rate of the former operation is nine per cent. higher than that of the latter.

Owing to the almost hopeless outlook for tracheotomy in children under two years of age, it would seem wiser in these cases to perform the milder operation of intubation. In children between two and three the question would be debatable. All statistics of secondary tracheotomy are very bad. The City Hospital figures show fifty-seven secondary tracheotomies with five recoveries. The writer concludes that intubation is not so favorable an operation as tracheotomy in severe laryngeal diphtheria, the chief reasons being that it does not afford such good drainage to the trachea, and that only a limited amount of nourishment can be taken by the intubated patient.

He, therefore, advocates the performance of tracheotomy instead of



intubation in most cases of severe laryngeal diphtheria, except in cases of children under two years, when intubation is to be preferred.

**A Case of Laryngeal Vertigo.** (*New York Medical Journal*, September 10, 1892.)

Dr. James E. Newcomb reports a case of this apparently rare affection (the number of cases reported being about twenty-five). The patient, a man aged forty, had no family history of insanity or epilepsy. Ten days before being seen the patient had taken cold and could not speak above a whisper. He had spasmodic attacks of coughing, ending in the dislodgement of a mass of thick, yellowish, tenacious mucus. The mucous membrane of the nose, pharynx, and larynx was in a condition of subacute catarrh. This condition lasted for six weeks in spite of treatment, then the frequency of the attacks became less. Each attack began with tickling in the larynx, followed by cough, general muscular spasm, and finally momentary unconsciousness. A firm hold of some support seemed to avert actual loss of consciousness. There was no preceding dizziness or aura, or subsequent drowsiness and mental confusion. Six months later the patient was perfectly well. A diagnosis of epilepsy is not warranted by the facts in this case. The pathology of these cases is still very obscure.

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## DERMATOLOGY.

IN CHARGE OF J. J. PRINGLE, M.B. (EDIN.), F.R.C.P. (LOND.),  
Physician to the Department for Diseases of the Skin in the Middlesex Hospital, London.

**The Etiology of Eczema.** (*Boston Medical and Surgical Journal*, September 29, 1892, p. 310.)—Unna has made etiology the basis of his conception of eczema. His definition is, "Eczemas are chronic parasitic catarrhs of the skin, with desquamation, itching, and a tendency to respond to irritation with exudation and increased inflammation." To this definition Neisser takes strong exceptions, objecting to his limitation of the name eczema to the chronic inflammatory processes, and to his claim that the acute attacks that end quickly have no right to be considered here.

Until all the parasites that are to be found in patches of eczema have been carefully studied and their properties recognized, the relation which exists between these parasites and the eczema can rest only on a purely theoretical basis. On the other hand, the importance of the presence of bacteria in causing mixed affections that influence the course of eczema has been thoroughly proved, as, for example, in the pustular and impetiginous forms.

In conclusion, the questions are asked: 1. What principles are to guide us in the local treatment? As etiological considerations do not afford us any help, we are forced to an antiphlogistic, symptomatic method.

2. Shall we only treat locally? The author expects, on the whole, but little result without local treatment. But all the indications that may have even a remote relation with the skin affections should be carefully attended to.

3. Shall we always treat the disease, or is there danger for the general condition to be feared, from curing an eczema? Convincing observations on this point are not in the author's possession, and he considers the question one that the general practitioner may be better able to decide than the specialist.

**Framboesia or Yaws.** (*British Journal of Dermatology*, February, 1892.) By Mr. Numa Rat.

The clinical history is divided into four stages:

1. The incubation stage,—from the time the virus is received to the appearance of an initial lesion at the site of entrance, of duration from three to ten weeks.

2. The primary stage, which means the appearance of an initial lesion, a papule which in about a week discharges a yellowish fluid, and merges into an ulcer. This heals in about two weeks, leaving a slight scar. Occasionally the papule may become a tubercle, or the ulceration may become extensive. The initial lesion is usually situated on the lips, breast, groin, genitals, or perineum.

3. The secondary stage. A fever makes its appearance about two weeks after the primary sore has disappeared, paroxysmal in type, usually quotidian. At the same time an eruption appears on the head consisting of small papules, which later become yellowish at the apex, owing to the presence of a substance like inspissated sebum. Soon after the eruption extends to the body. Later the papules develop into tubercles, averaging one-quarter of an inch in diameter, composed of granulation tissue covered with a creamy acid secretion. The tubercle, in spite of the name, "framboise," is very unlike a raspberry. The color varies according to the amount of blood, and dries up in about four weeks. There is always itching and the skin has a sour odor.

The disease is most common in infancy and childhood, and as it is said to run a lighter course in youth, parents in certain parts of Africa expose their children to it in infancy, and even inoculate them with it. As variations in the course, the tubercles may coalesce, forming patches or rings of granulation tissue, and sometimes ulcerate. They may be found on the palms and soles or on the mucous membranes of the nasal fossæ.

4. The tertiary stage. Here extensive loss of tissue occurs, sometimes serpiginous, the mucous membranes may be seriously ulcerated, and these lesions may occur twenty years after the subsidence of the secondary eruptions.

Mr. Rat considers the differences between syphilis and yaws, emphasizing the fungous character of the eruption of the latter; the fact that it is



not proved to be hereditary; that it is not usually contracted through the genitals; that it is endemic and epidemic; that persons having syphilis may also acquire yaws, etc. Mr. Hutchinson, however, shows that it is proved to be a constitutional disease, beginning with a local lesion and having secondary and late manifestations, and concludes that it is syphilis modified by climate and race. The method of cure is also a strong argument in favor of the identity of the affections. Formerly the spontaneous cure of yaws was cited in favor of non-identity, but Mr. Rat says that mercury and iodide of potassium are indicated in the same stages as in syphilis. It is said that Englishmen do not return affected with yaws, and hence Mr. Hutchinson considers it a disease that cannot leave its home.

## HYGIENE AND BACTERIOLOGY.

IN CHARGE OF A. C. ABBOTT, M.D.,

First Assistant in the Laboratory of Hygiene, University of Pennsylvania.

**The Disinfection of the Intestinal Tract.** (Ueber Disinfection des Darmkanals. From the *Med. Klin.*, at Breslau; *Zeit. f. Hygiene*, Bd. xiii. p. 88.) By Stern.

The indications of the therapeutics of infectious intestinal diseases present themselves under the following heads:

1. One endeavors by mechanical means to rid the intestines of its bacterial contents either by purgatives or enemata.

2. One endeavors to destroy the vitality of the bacteria in either by means of disinfecting agents.

3. One endeavors either to neutralize the poisonous products of bacterial growth in the intestines before they are absorbed, or to favor their elimination after absorption has taken place. In the experiments of Stern especial attention was given to the study of those agents more especially employed for the disinfection of the intestines. These he divided into three groups:

The easily soluble, those that are dissolved with difficulty, and those that are broken up in the intestinal tract, and the actual disinfecting properties thus developed.

In the first group belong inorganic and organic acids, corrosive sublimate and other metallic salts, phenol, resorcin, chloroform, water, etc.

In the second group are placed calomel, iodoform, naphthalin,  $\alpha$ - and  $\beta$ -naphthol.

The third group comprises bismuth, salicylate, salol, betrol, tribromophenol, etc.

From the disinfection experiments of these substances performed outside of the body it was impossible to draw any definite conclusion as to their probable behavior within the intestinal tract, for the antiseptic or dis-

infectant activity of a substance outside of the body is not always an indication of a similar property when in the body.

By careful bacteriological study of the evacuations of an individual upon whom his experiments were performed, Stern is led to conclude that, after the employment of  $\beta$ -naphthol for twelve days, the whole amount administered being over forty grains, there was no appreciable diminution in the number of bacteria present in the fæces.

In a second series of experiments, in which a number of individuals received with their meals suspensions of easily-recognizable, innocent, saprophytic bacteria, to some of these the disinfectant was administered immediately before the meal, while to others it was given immediately after. In none of these cases was disinfection complete, for in the intestinal evacuations of all of them the organisms that had been administered by the mouth could easily be detected.

In these experiments the disinfectants that were employed were calomel, salol, naphthaline,  $\beta$ -naphthol, and camphor.

The persons upon whom the experiments were performed were in some instances those in the possession of normal health, while the balance were suffering from intestinal catarrh, intestinal tuberculosis, or typhoid fever.

**Elimination of the Tetanus Poison by the Kidneys.** (Ueber die Ausscheidung des Tetanustoxins durch die Nierensecretion. *Dtsch. Med. Woch.*, 1892, No. 16, p. 349.) By Bruschettini.

The demonstration of the tetanus toxine in the kidney of an animal dead of this disease induced Bruschettini to examine the urine of animals and human beings suffering from this disease for the purpose of determining if there was an effort on the part of the body to eliminate the poison through this channel.

In these studies he was enabled to demonstrate that in the urine of animals in which tetanus had been produced experimentally, and of individuals who had become accidentally infected, there was present sufficient of the poison to produce the characteristic symptoms when inoculated into mice and rabbits; and one case, that of a man from whom three cubic centimetres of the urine produced tetanic symptoms in a mouse, and ten cubic centimetres the same in a rabbit, was treated with Tizzoni's tetanous antitoxine; after four injections, given in the course of five days, the urine lost its poisonous qualities in these doses.

**Experiments upon the Poison of Cholera.** (Untersuchungen ueber das Choleragift. From the Institute for Infectious Diseases, Berlin; *Zeit. f. Hygiene*, Bd. xi. p. 393.) By Pfeiffer.

In connection with his experiments upon the poison produced by the cholera organism, Pfeiffer writes that in very young cultures, grown under the access of oxygen, there is present a poisonous body which possesses extraordinarily intense toxic properties. This primary cholera poison stands



in very close relation to the material composing the bodies of the bacteria themselves, and is probably an integral constituent of the same. Through chloroform, thymol, and by drying, the vitality of the cholera spirilla can be destroyed without apparently any alteration of this poisonous body. Absolute alcohol, concentrated solutions of neutral salts, and 100° C. decompose this substance, leaving behind secondary poisons, which possess a similar physiological activity, but only when given in from ten to twenty times the dose necessary to produce the same effects with the primary poison.

The other members of the vibrio family also—namely, vibrio Metschnikoffi and that of Finkler and Prior—contain a closely-related poison.

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## PATHOLOGY.

IN CHARGE OF ALLEN J. SMITH, A.M., M.D.,

Professor of Pathology in the Medical Department of the University of Texas, Galveston, Texas.

**Some Parasitic Protozoa found in Cancerous Tumors.** (*British Medical Journal*, July 16, 1892.)—J. Armand Ruffer and J. Herbert Walker describe certain bodies found by them within the protoplasm of the epithelial cells of carcinomata. The authors suggest as the best means of demonstrating these bodies that small bits of the tumor tissue be fixed immediately after removal from the patient in some such medium as a saturated solution of corrosive sublimate, absolute alcohol, a one-per-cent. solution of osmic acid, Flemming's solution, or Müller's fluid. Sections hardened in alcohol are best stained in Biondi's reagent; those hardened in Flemming's solution give the most satisfactory results when stained first with methyl-green and then with Biondi's reagent, or with logwood and rose-bengaline. However, any good nuclear stain followed by a contrast aniline color will suffice for demonstrating the organisms. The parasite as described by these observers consists of a rounded cell mass, with a central nucleus, about which the protoplasm seems to have become condensed, and from which pass very fine rays to terminate at the periphery of the parasitic body. In the protoplasm, especially near the periphery, there are often to be seen dark particles in variable number, apparently connected with each other by a fine net-work. Pigment granules are also sometimes present. About the parasite, arising from the protoplasm of the invaded cell, there is to be seen a deeply-staining wall. The size of the parasitic bodies depends upon that of the host cell; as a rule, there is but one parasite in a single cell, but occasionally there are two, three, or more. The presence of the foreign body in the epithelial cell apparently causes the degeneration of the latter, but the nucleus resists this tendency for a comparatively long time, while the epithelial cells in the vicinity of the host cell seem to be stimulated to multiply. The authors have not been able

to demonstrate these bodies except in the epithelial cells of cancerous tumors, and are disposed to believe that in their existence in the other tissues of the affected person they possess some other form. They call attention to the evidences of phagocytic action of the leucocytes upon these bodies, thus explaining away, in a plausible manner, the theory of *hyperchromatosis* of Klebs in relation to the entrance of leucocytes into the epithelial cells of carcinomata for the purpose of inducing cell division.

**Upon Metastasis of a Primary Cancer of the Lung in an Interstitial Myoma of the Uterus.** (Ueber eine Metastase eines primären Lungenkrebses in ein interstitielles Uterusmyom. *Virchow's Archiv*, Bd. 129, Hf. 1.)—Dr. Heinrich Schafer reports the occurrence of the very rare combination of carcinoma and leiomyoma in a specimen taken from the body of a woman of sixty-four years of age. The patient had a large cylindrical-celled cancer of the left lung, matting the lung and heart together, as a result of which she eventually died with the usual symptoms of heart-failure. At the autopsy an encapsulated myoma was found on the anterior peritoneal surface of the uterus, about half-way above the external orifice of the organ, measuring about seven centimetres in diameter. At one point in this growth, which otherwise presented the ordinary macroscopic and microscopic features of a uterine myoma, was a rather soft and juicy area in which could be recognized under the microscope cylindrical epithelial cells, identical to those found in the pulmonary tumor. Upon examination of sections, after the usual preparation, it was found that throughout this area were alveola-like spaces, full of epithelial cells, pressing aside and utilizing as a stroma the muscle-fibres of the myoma. There was no evidence of active participation on the part of the muscle-tissue in the cancer formation, only a passive part being assumed by it in relation to the actively proliferating and infiltrating epithelial cells. There is no note of any encapsulation of this apparently secondary nodule of cancer within the myoma, nor were there any other secondary foci. It is probable, however, that there was a definite relation between the pulmonary cancer and this cancerous portion of the myoma; and even in the absence of positive evidence in the vessels of metastasis, the combination of cylindrical-celled cancer and leiomyoma is so rare as to give a decided interest to the case.

**Auto-infection in Cancer.** (*Med.-Chir. Rundschau*, No. 12, 1892.)—Hamburger, as quoted in the *British Medical Journal*, July 16, 1892, reports the interesting and suggestive case of a woman of fifty years of age, who had had for several years a tumor upon the left labium minus. It had grown to a considerable size and ulcerated upon the surface approximating the opposite labium. A short time after this small warty masses appeared upon the right labium minus on the surface in contact with the ulcerated growth, and these presently ulcerated as well. After removal the growths on both labia were found to be squamous epitheliomata.



## CLIMATOLOGY.

IN CHARGE OF GUY HINSDALE, M.D.,

Lecturer on Climatology in the University of Pennsylvania, Philadelphia.

Wintering in Egypt. (*New York Medical Record*, August 20, 1892.)—Dr. Frederick Peterson recommends for winter quarters Helouan, Gizeh, or Luxor, or, for an excursion, the voyage in a dahabeeyah up the Nile for three or four months, or camping out in the desert. Rain is a rare event. Dew is always present in Lower Egypt along the Nile, and in the desert near the Nile. At Luxor and the First Cataract dew is almost unnoticeable. The annual relative humidity at Cairo is fifty-eight and four-tenths per cent., but is stated to be sixty-three and two-tenths per cent. for the seven months during which Cairo is frequented by invalids. Luxor is from twelve to fifteen per cent. drier than Cairo. Diarrhœa is common among the natives, and visitors occasionally suffer from it unless they are duly cautious as regards warm abdominal clothing. Pleurisy, bronchitis, and pneumonia are frequent, but only from a careless exposure at night. The desert is sometimes piercingly cold at night, and water will occasionally freeze on exposure to a desert night-wind. Malaria in a mild form is frequent along the river in the warm months. Consumption is almost unknown among the Egyptians, but the blacks from Nubia, Abyssinia, and Soudan, on coming to Lower Egypt, which is damp and cold in comparison to their native land, are subject to it. Acute rheumatism, gout, and rheumatoid arthritis are stated to be practically unknown in Egypt. Insanity is a rare phenomenon; paralytic dementia is never met with, and there are only two hundred and fifty persons in the insane asylum in a population of six millions.

Winter Park, Florida. (*Climatologist*, July, 1892.)—Dr. J. L. B. Eager claims absolute freedom from malaria, scarlet fever, or diphtheria, for this locality. Situated forty miles from the Atlantic Ocean and eighty miles from the Gulf, and upon a ridge two hundred feet above sea-level, it is one of the most desirable points in Florida. Sanitary inspections are rigidly enforced.

Eye Diseases among the Indians. (*Medical Record*, September 17, 1892.)—Dr. A. B. Holder treats of various diseases among the Indians.

“The alkali found throughout the arid cactus belt of the West, the home of many of the Indian tribes, is painfully irritating; particularly as in the same region usually prevail frequent high winds lifting the dust and sand, and driving fine, irritating particles into the eyes of the unfortunate inhabitants.

“One who has ridden all day with the rays of a bright winter sun glittering on endless fields of snow can appreciate the pain of ‘snow-blind-

ness ;' yet the Indians have strong eyes, going constantly in bright sunlight without hat or other protection for the eyes ; but those of the Northwest, who must endure the glare of the sun on the snow for four or five months, suffer much from conjunctivitis from this cause.

" Perhaps the most potent cause affecting the large part of the race who continue to live in the primitive method, is smoke. Their house, the tepee, is a conical tent with an opening at the apex for the exit of smoke ; but smoke is proverbially perverse, and frequently will not exit at this opening. The Indians crouch in this for hours until the wind or other factor changes and the smoke ascends. The result is severe irritation of the delicate membrane and resulting conjunctivitis, rendered chronic by persistence of the cause.

" Epidemic conjunctivitis, the form usually called catarrhal, I have not seen. It may, however, exist, as March, the month in which we would expect it, is called in the Sioux tongue the 'sore-eyed month,' indicating great prevalence of the disease at that season.

" Notwithstanding its great prevalence, conjunctivitis is not often serious in its results, and blindness is not a frequent infirmity among Indians."

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## REVIEW OF ITALIAN, SPANISH, AND PORTUGUESE MEDICINE.

IN CHARGE OF A. M. FERNANDEZ DE YBARRA, M.D.,

Corresponding Member of the Medico-Chirurgical Academy of Madrid, Spain, the Argentine Medical Circle of Buenos Ayres, South America, and the Society for Clinical Studies, of Havana, Cuba.

Contribution to the Treatment of Congenital Dislocation of the Hip in Children by Paci's Method. (*Archivio italiano di pediatria*, March, 1892.)

Dr. Annibale Nota gives an account of twelve children with congenital dislocation of the hip, in whom he practised seventeen times the reduction according to the method of Paci. The luxation was seven times unilateral, of which he obtained a cure in four, failed in one, and the other two cases are still undergoing treatment. All the children were from two to fifteen years of age. The difficulties to be encountered in the reduction and maintenance in position of the dislocation are dependent on the anatomic-pathological lesions, and also the care with which certain rules of the operation have to be carried out. The os innominatum forms an inclined plane, against which it is very difficult to maintain in position the head of the femur, the muscular contraction helping to push it upward out of place.

The author says he has invented an apparatus to overcome this unfavorable muscular contraction. It consists of two metallic splints to be fixed at the level of the trochanter by means of elastic bands passed around



the pelvis. The head of the femur forms in that way with the body of the patient an angle of  $90^{\circ}$  or a little less (the normal angle varies from  $120^{\circ}$  to  $140^{\circ}$ ). This favors the maintenance in position of the two bones in spite of the muscular tendency to draw the head of the femur upward. The continued extension is the only means to neutralize that tendency, especially if care is taken to place the hip in hyperextension. To accomplish it, the author advises to raise the pelvis with sand-bags. Besides, it is convenient to apply extension at night by means of weights for a long period, to use massage and electricity, without forgetting the internal general treatment at the same time.

**Lysol in the Treatment of Blennorrhagia.** (*Boletín de medicina de Santiago de Chile*, June, 1892.) By Dr. V. Carvallo.

In this article the author speaks in very favorable terms about the use of lysol in the treatment of gonorrhœa. He employed it in both acute and other cases of three or four months' standing, in the form of injections of one per cent.'s strength, without giving any remedy internally. It produces a sensation of warmth in the urethral canal, which soon vanishes. The pain disappears at the second or third day of treatment; the pathological secretion begins to diminish from the time the first few injections are made, and completely ceases at the end of the first week of treatment, Dr. Carvallo says. These two are the formulæ recommended by him:

1. Lysol solution, one per cent. strength, 100 grammes; Sydenham's laudanum, 3 grammes.
2. Lysol solution, one per cent. strength, 100 grammes; cocaine hydrochlorate, 50 centigrammes.

The injection ought to be kept in the urethra during four or five minutes, repeating it at least three times a day at the commencement, and not so frequently after the discharge is diminished.

**Preventive Measures against the Introduction of Cholera into Portugal.** (*A Medicina Contemporanea*, Lisbon, October 16, 1892.)

This journal reproduces the instructions issued by the Portuguese government, and published in the official *Diario do Governo*, to prevent the introduction of Asiatic cholera through the frontier, followed by another series of prophylactic rules to be put in practice in the cities and towns of the kingdom. The land quarantine comprises the following:

1. Rigorous inspection of all railroad passengers on the immediate arrival of the train at the frontier station, giving to each a pass if found entirely healthy, or detained if having any symptom of disease.
2. Disinfection of their baggage, after being opened and inspected, by means of superheated compressed vapor or sulphurous fumigation (at least fifty grammes of sulphur per cubic metre of confined space), according to their texture, putting afterwards the wearing apparel into bags closed and numbered.

# FORENSIC MEDICINE.

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IN CHARGE OF LORENZO D. BULETTE,  
Of the Philadelphia Bar.

## *A CASE OF ALLEGED MALPRACTICE IN THE TREATMENT OF PHIMOSIS.*

EVERY medical practitioner, even the most competent and careful, is liable, in the course of his practice, to actions for damages by patients disappointed in the results of their treatment, medical or surgical. There is, perhaps, no remedy for this annoyance under our present system, where the courts are open to every one who seeks their aid to right his wrongs, be they real or imaginary. Much relief may be obtained by co-operation among physicians themselves,—indeed, very many actions of this sort would never be brought if greater loyalty to one another prevailed among medical practitioners. An unguarded criticism of another's treatment, or even a chance remark in relation thereto, operates powerfully on the mind of a patient, especially one of the ignorant class, and is frequently decisive with him in a contemplated action for damages. A change of treatment adopted by a physician called in by the patient after the dismissal of his former medical attendant is a fruitful source of actions for damages. A generous and conscientious physician, thus called in, occupies a position of difficulty and delicacy.

The case of *Barnum vs. Jackson*<sup>1</sup> was an action for damages for alleged malpractice in the treatment of phimosis; and the patient was very probably influenced to bring his action by the change in the treatment adopted by Doctor B.'s successor, and which was adopted in the utmost good faith, without necessarily implying that the former treatment was not indicated by the symptoms then present.

The complaint alleges that on January 5, 1890, the defendant, who was a practising physician and holding himself out as competent to treat diseases, was employed by the plaintiff, and, in consideration of a reward or recompense, promised to treat and endeavor to cure him of phimosis, a malady with which the plaintiff was afflicted; but that the defendant, in violation of such promise and of his duty to exercise reasonable care and skill in the treatment of the plaintiff, instead of slitting up the prepuce to the corona and thus liberating the glands of the penis and allowing circula-

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<sup>1</sup> 28 Pac. Rep. 250.



tion, and using other appliances and remedies as is the reasonable, usual, and ordinary method adopted by the profession in such cases as this to prevent gangrene and sloughing, wrongfully, negligently, and unskilfully applied and directed to be applied and kept on the member of the plaintiff a flaxseed-meal poultice, which application, under the circumstances, aggravated the plaintiff's malady, and accelerated the condition of gangrene and sloughing which followed, and might have been prevented by proper treatment; and that the defendant wrongfully, negligently, and unskilfully neglected to use the proper and ordinary means and care whereby the plaintiff's member might have been saved and cured or relieved. To this complaint the defendant filed his answer, admitting that he was a practising physician, and that he was called to attend and administer medicines to the plaintiff, but denying every other material allegation contained in the complaint. Upon a trial of the issue thus presented the plaintiff obtained a verdict of five thousand dollars, but the judgment entered on this verdict was reversed by the Supreme Court on appeal thereto.

In the first place, it will be observed that the complaint in this case does not allege that the defendant was not a physician properly educated and qualified, but the claim for damages is that the injuries resulted from his negligent and unskilful treatment. Much testimony was taken by the plaintiff, which in effect established that, after a brief treatment of the plaintiff by the defendant, he was discharged, and a period of thirty-six hours intervened before another physician was called in. At the time the second physician was called and examined the organ, he hesitated about undertaking the case, and finally concluded that he would not do so without additional assistance. This being procured, it was deemed the proper treatment to slit the prepuce. This was on Wednesday, and not till Saturday or Sunday following were the physicians satisfied that gangrene had set in. Being so satisfied, they determined on amputation. Two or three amputations were performed, the last resulting in the complete disappearance of the organ.

The defendant, Doctor B., was called originally to treat the plaintiff for chills and fever, and incidentally his attention was directed to the condition of the organ of the plaintiff; and the unquestioned testimony of all the witnesses was that the organ at that time presented a swollen and filthy condition, and that it was in fact very much inflamed. Doctor B. then prescribed a flaxseed-meal poultice, mixed with certain kinds of oil and charcoal.

It is proper at this point to recall the nature of the contract between the plaintiff and the defendant. The law requires and implies, as part of the contract, that when a physician undertakes professional charge of a patient he will use reasonable and ordinary care and diligence in the treatment of the case. The law further implies that he agrees to use his best skill and judgment at all times in deciding upon the nature of the disease, and the best mode of treatment, and the management generally of the

patient. The essence of the contract is that he is to do his best, to yield to the use and advice of his patient his best knowledge, skill, and judgment, with faithful attention by day and night, as reasonably required. There are some things, however, that the law does not imply or require. The physician is not responsible for want of success in his treatment unless it is proved to result from the want of ordinary care or ordinary skill and judgment. He is not a warrantor of a cure, unless he makes a special contract to that effect. If he is shown to possess the qualifications, as stated in the first proposition, to authorize and justify him in offering his service as a physician, then, if he exercise his best skill and judgment, with careful observation of the case, he is not responsible for an honest mistake of the nature of the disease, or as to the best mode of treatment, when there was reasonable ground for doubt and uncertainty.

And Mr. Justice Richmond, in delivering the opinion of the Supreme Court, said, "A careful examination of all the authorities, from the earliest to the latest, will conclusively establish this to be the nature of the contract entered into by a physician and the person calling him; and under this rule we can safely say that it is admitted by the plaintiff that Doctor B. possessed all the qualifications as a physician or surgeon that the law requires. That is to say, he was possessed of that reasonable degree of learning, skill, and experience which is ordinarily possessed by others of his profession who are in good standing as to qualifications, and which reasonably qualify him to undertake the care of a patient." Where there is a difference among practical and skilful surgeons as to the practice to be pursued in a certain class of cases, a surgeon may exercise his own best judgment, and employ such treatment as experience has shown him to be best; and a mere error of judgment as to that would not under the law make him liable in damages for an injury resulting to his patient. With this statement of the rules of law applicable to the facts of this case, it is now necessary to refer to the testimony of some of the witnesses.

Doctor B. himself testified that he was called upon to attend the plaintiff, and found him in a high fever; that he complained of more or less pain through his chest and of looseness of the bowels; and that subsequently, after prescribing for those ailments, his attention was called to the plaintiff's penis; that he examined the organ and found it in a filthy condition, both in appearance and in odor, and that he prescribed at the time for a local trouble; that he asked the plaintiff how long it had been troubling him, and the plaintiff replied, "Several days." Defendant further asked him how it became poisoned,—“Have you had connection with an impure woman, or been abusing yourself?” That he could not give an intelligent reply to questions. After further reference to the condition of the organ, he concluded that possibly there might be an ulceration, and, getting as much information from the young man as he could, he prescribed antiseptics and disinfecting agents for cleansing the putrid condition of the organ; that he desired to have it cleansed; that the swelling was not confined to the head



of the organ ; and that there was no apparent constriction of the glands below the prepuce ; that there was no bulging up of the glands indicating constriction ; and that the organ was inflamed from the prepuce back to the body. He further testified that he has treated phimosis ; that it is a simple operation, and a safe one, where the patients are in good condition. In this case, he says, "I found a condition of poison, that is, of tensiveness, and of more or less discharge ; that to have meddled with it in a surgical way would probably have infected whatever cut I might have made, and would have aggravated and complicated the whole case." That next morning he saw the patient, and found the offensive odor still ; that he, in a sharp way, directed him to keep the organ clean ; that he ordered a continuance of the disinfecting solution, to keep it enveloped and wrapped, so as to allay inflammation, and to prevent the odor that attached to it. This, apparently, was the condition in which Doctor B. found and left the patient. From thirty-two to thirty-six hours thereafter, another physician, Doctor R., was called in, and then found a condition of affairs altogether different from that testified to by the defendant, Doctor B. He testified that upon an examination he concluded that the patient was suffering with congenital phimosis, which disease he described to be a condition in which the foreskin does not go back, and it becomes and very often adheres to the gland of the penis, and will not go back, except the person is circumcised and it is put back, and a surgeon has very frequently to tear the outer skin outside loose from the head and put it back by force. After deciding what the disease was, and the condition of the organ, the doctor concluded that he would require a consulting physician, and thereafter Doctor C. was selected. From the testimony of both these physicians, it appears that the organ was dead, although it was necessary for them to perform an operation before thoroughly satisfying themselves of this fact, and that four days thereafter they found it necessary to perform two more amputations of the organ in order to save the plaintiff's life.

Returning to a consideration of the complaint : It states that the unskilfulness and neglect of the defendant "was, instead of slitting up the prepuce or foreskin to the corona, and using other appliances and remedies, as is the reasonable, usual, and ordinary method adopted by the profession in such cases, that he wrongfully, negligently, and unskilfully applied and directed to be applied and kept on the penis of the plaintiff a flaxseed-meal poultice, which application, under the circumstances and in the condition of the plaintiff's malady, aggravated said malady and accelerated that condition of gangrene." "There is not," says the Supreme Court, "an atom of testimony in the entire record that satisfactorily establishes this part of the complaint, that the application of the flaxseed-meal poultice accelerated the gangrene. There is no proof that, at the time Doctor B. had the patient in charge and was treating his particular malady, gangrene had set in, although Doctor B. honestly admitted that he was fearful that such was the condition. But in this connection, and consider-

ing the above paragraph of the complaint, attention is called to the testimony of Doctor R., who testifies that, after cutting or slitting, he dressed it antiseptically, wrapped it in cotton to keep it warm, and directed the plaintiff to use gentle friction himself, as far as he could, to restore circulation. 'I did not poultice because I thought it had been sufficiently poulticed already, and perhaps another poultice would make the parts soggy instead of aiding the circulation.' Doctor C., another witness on the part of the plaintiff, testified that 'if I treated the constriction from the increasing inflammation, I should liberate the gland by incising the contracted foreskin, and use antiseptics to prevent the parts decomposing.' He says, 'Frequently they complete the case by circumcision. Circumcision or incision, in a healthy person, is not a dangerous procedure.' He further says that subsequently it was found necessary to amputate the member. Let it be borne in mind that the testimony also discloses the fact to be that the plaintiff in this case was a colored man, and that Doctor C. testified that it is easier to detect the presence of a gangrenous condition in a white limb than in one of color, and, in giving his opinion as to whether the penis could have been saved by circumcision or incision, he says, 'From the condition of the person at my first visit, my opinion was that there was a time when liberation of this compression or constriction would have prevented gangrene of the glands of the body.' The testimony discloses that circumcision had been performed many years before. Doctor H., who testified on behalf of the defendant, and was present in court and heard the testimony of the defendant, Doctor B., indicated that his treatment would be altogether different from that of any of the physicians, and even of Doctor B. Three other medical witnesses supported the treatment of Doctor B. Doctor H. testified that it would not be good practice to slit up the prepuce in a state of inflammation. All the witnesses called on behalf of the defendant had submitted to them questions involving the condition of the organ at the time Doctor B. was first called, and during his treatment."

Upon the testimony as thus reviewed, the Supreme Court said, "There is here no evidence tending to establish the fact to be that the defendant, Doctor B., during the time he had charge of the patient, omitted the ordinary or established mode of treatment, or pursued one that proved injurious. It is admitted all through, in the pleadings and in the evidence, that the defendant possessed the knowledge and skill to attend upon the plaintiff, and it is only claimed that he neglected and unskillfully treated the plaintiff; and for the trial court to state positively to the jury that his treatment, if he departed from the ordinary and established mode of treatment, demonstrated to the jury that he exhibited a want of skill, is in my judgment going too far. It certainly must have had its influence on the jury. To charge a physician or surgeon with damages on the ground of unskillful or negligent treatment of his patient, the prosecution must show, *first*, that the injury to the health or body resulted from bad treatment; *second*, that the evil result might have been foreseen and avoided by a



competent practitioner. Malpractice can only be affirmed where a physician has set aside the established practice, and neglected to employ means which are universally held to be necessary in a given case. But, before the physician can be reckoned guilty of malpractice on account of such deviation, it must be established, *first*, that the following of the rules prescribed by medical science for the curing of the disease never proves detrimental; *second*, that there is at least the greatest probability that the following of the rules will accomplish the desired end; and, *third*, that the great majority of medical authorities have approved the rules.

“The position now generally accepted is that a physician is not responsible for damages if he acts in accordance with the views of his particular school. His patient employs him as belonging to such school. There is no proof that satisfactorily shows that circumcision, incision, slitting of the prepuce, or any other surgical operation was necessary and proper at the time when the case was taken from the hands of Dr. B. The uncertainty of the law is almost proverbial. Probably that of the medical profession is not less so. Many schools among them entertain different and almost irreconcilable theories as to the nature and mode of treatment of diseases. Among all these it seems to be conceded that the character and symptoms of diseases vary in persons of different ages, sexes, and habits of life, and of different natural or acquired constitutions; and the treatment of diseases must be more or less varied with the changes of climates and seasons, and with the peculiarities of places and persons; and that cases of sickness and circumstances apparently similar may yet be rendered substantially different by seemingly slight circumstances, easily overlooked, and otherwise difficult of detection. This being so, the circumstances which may surround the medical or surgical practitioner, and the errors or mistakes to which he is unavoidably exposed, furnish a startling explanation of the unavoidable results, where a jury are satisfied of the reasonable skill, diligence, attention, and care of the patient.”

The trial court was requested by the plaintiff to charge the jury, and it did so charge, that “it is important to the interests of society that the profession intrusted with the preservation of the health and lives of the community should be held to a strict rule of accountability.” “This,” says the Supreme Court, “is going outside of the record; it is referring to matters which should not have been called to the attention of a jury, and thereby influence their judgment against the defendant. Society had no direct or indirect interest in the result of the jury’s deliberations. It was purely a question between the plaintiff and the defendant, under the contract of patient and physician, a question of whether or not defendant was skilful and diligent and faithful in his treatment of the plaintiff during the time he was permitted to attend him. Why, then, should the interests of society be called in to support the charge made in the complaint? We will admit that the declaration of the court is a true one, that society is interested, and that the profession intrusted with the preservation of the

health and lives of the community should be held to a strict rule of accountability. But what is that rule? That rule, as laid down in the books, and by every authority that I have been able to discover, is that the law does not require the highest degree of skill in physicians and surgeons, but that they undertake to bring to their aid the ordinary care and skill of those engaged in the profession, and to treat their patients with ordinary care and skill and to the best of their judgment."

The trial court also instructed the jury, "That if writers on the treatment of phimosis or practical surgeons prescribe a mode of treatment, it is incumbent on surgeons called on to treat such ailment to conform to the system of treatment thus established, and if they depart from it they do so at their peril." The Supreme Court, in commenting on this instruction, said, "Physicians are bound by what is universally settled in their profession, not by what some writers and practical surgeons recommend. Other writers and other surgeons may adopt other modes, and when there is room for doubt or choice, as surgeons or physicians, they must exercise their judgment, and are not responsible for mistakes honestly made. If this last instruction can be sustained, then the further progress in surgery is absolutely prohibited by judicial decision, and I venture to say that writers of the present day on surgery widely differ in the treatment and practice from writers of ten or fifteen years ago; at least, if this be not true, then the science of surgery has not progressed to such an extent as a non-professional man, reader, and thinker is led to believe it has. An examination of different medical works with reference to the particular disease, phimosis, reveals the fact that there are at least several modes of treating this particular disease laid down. Caution under some circumstances is advised. Circumcision under certain circumstances is recommended, and under others not. Physicians are not responsible for the errors of an enlightened judgment, where good judgments may differ; and I can come to no other conclusion than that, when there are reasonable grounds for doubt and difference of opinion, the professional man, after the exercise of his best judgment, admitting that he possesses the necessary knowledge, is not responsible for errors of judgment or mistakes, and is only chargeable with error where such error could not have arisen from want of, or the exercise of, reasonable skill and diligence. We think, therefore, there was error in this instruction, and it had a tendency to mislead the jury."

For the errors, among others, thus pointed out, the judgment of the trial court was reversed and a new trial granted.

The comments of the court, in this case, in applying the rules of law to the facts constituting the evidence, and which for this purpose are necessarily given somewhat at length, must prove rich in suggestion to the medical practitioner, and aid him in protecting himself from legal liability in a difficult class of cases. In addition to this, it must be borne in mind, that the relation of physician and patient is purely contractual, and that no one can be compelled to enter into a contract against his will. The



physician is not obliged to treat professionally every one who comes to him or calls him in ; his occupation does not partake of a public character. A common carrier, as a railroad company, is obliged to receive and forward all goods offered for transportation ; an inn-keeper must receive all well-behaved guests applying for food and lodging. This is because of the public nature of these occupations, and public policy, therefore, demands that they be allowed no choice in the matter ; but the medical practitioner is not bound by the same rule. When, however, the relation of physician and patient is established, the former must attend and respond to calls until he is dismissed, a cure is effected, or, in his best judgment, the patient no longer requires his services.

An observance of the rules of law here laid down and greater loyalty to one another among physicians themselves will, to a great extent, free the profession from the annoyance of actions brought by a certain class of patients.

## BOOK REVIEWS.

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INTERNATIONAL CLINICS: A QUARTERLY OF CLINICAL LECTURES ON MEDICINE, NEUROLOGY, PEDIATRICS, SURGERY, GENITO-URINARY SURGERY, GYNÆCOLOGY, OPHTHALMOLOGY, LARYNGOLOGY, OTOTOLOGY, AND DERMATOLOGY. Edited by J. M. Keating, M.D., LL.D., Judson Daland, M.D., J. M. Bruce, M.D., F.R.C.P., and D. W. Finlay, M.D., F.R.C.P. Volume III., Second Series, 1892. Philadelphia: J. B. Lippincott Co.

The third volume of the *Clinics* comes to the reviewer with fifty-two articles covering 385 pages, contributed by fifty-three of the leading clinicians of this country and abroad. Of these contributors, ten are subjects of the Queen, one is a Parisian, and the rest are citizens of the American republic, the list including the names of such well-known leaders of medical thought as Ashhurst, Cameron, Charcot, the elder Davis, Duhring, Loomis, Mundé, Pepper, Beverley Robinson, Mayo Robson, and Stewart (of Montreal). The *International Clinics* is rapidly taking the place in medical journalism which the *Century* and *Harper's Magazine* occupy in general literature; and no volume better guarantees the truth of such a statement than the one in hand, in its clear typography, the artistic beauty of many of the illustrations (from a physician's point of view, of course), the status of the contributors, and the attractiveness of the subjects considered and of the text. Of the fifty-two articles, one-fourth of the entire number are embraced in the section on medicine, six are included in the neurological portion of the volume, two in the pediatric chapter, nine under the caption of surgery, one in the pages devoted to genito-urinary surgery, ten in the gynæcological division of the book, and the remainder are ranged under the heads of ophthalmology, laryngology and rhinology, dermatology, and otology.

Of the articles in the medical section, those which are prominent because of their excellence are the lectures of Professor J. O. Hirschfelder, of San Francisco, upon thoracic aneurism; of Professor N. S. Davis, Jr., of Chicago, upon uræmia; of Dr. G. A. Gibson, of Edinburgh, upon the effects of renal disease upon the circulation; and of Professor H. C. Cameron, of Glasgow, upon foreign bodies in the air-passages. The last-named two are particularly happy in their discussions of the pathological processes involved in the conditions treated of; and the lecture of Hirschfelder stamps the author as a clinical teacher of the highest merit, so clear are the contentions and sequences established in his remarks upon the diagnosis of thoracic aneurism. The lecture of Professor Mayo Robson on peritonitis and its treatment is a clear exposition of the surgical aspect of the subject, but seems out of place among the medical papers; and, indeed, the lecture of Professor Cameron on foreign bodies in the respiratory passages is really of surgical rather than of medical import.

The lecture on trephining for focal epilepsy, by Dr. J. H. Lloyd and Dr. J. B. Deaver,—the former discussing the neurological and the latter the surgical side of the question,—is a valuable addition to the literature of the subject. In the first of the two cases which served as text for the lecture, while there has been a recurrence of the fits since the operation, four years ago, the convulsions are of decidedly milder type than they originally were, and there is an undeniable mental improvement. Of all the sections of this volume of the *Clinics*, one must accord the highest praise to that devoted to nervous diseases. Not only is the above-mentioned article of Drs.



Lloyd and Deaver worthy of attention, but without a single exception the neurological lectures—on syringomyelia, by Dr. J. T. Eskridge; on brachial monoplegia, by Charcot; on melancholia, by Professor Rohé; on impairment of the motion of the arm from nervous causes, by Dr. G. L. Walton; and on muscular atrophies and contractures in locomotor ataxia, by Professor J. C. Shaw—are all of very decided merit, and worthy of far more space than this review may permit.

In the surgical part of the volume there is to be mentioned *cum laude* the lecture on hernial trusses and their application, by Professor W. B. de Garmo, of New York. If there is one condition in the range of surgery in which more mistakes are made than in the fitting of trusses by physicians, who should understand the uses of these appliances, it does not now occur to your reviewer's mind. The lecturer easily and with interest introduces the subject of trusses, their history, and the principles of their construction, and devotes considerable attention to the proper mode of fitting them to the individual case, and the treatment of the excoriations and other discomforts liable to be met in persons using these instruments. This lecture will, without doubt, be gratefully perused by a large proportion of the readers of the volume, and is to be highly commended for its excellence. Professor McFarlane, of Toronto, contributes a paper of marked value upon acute infectious osteomyelitis; and the lecture upon tubercular disease of the hip, by Professor V. P. Gibney, of New York, is a valuable and suggestive addition to the subject, although one may not agree entirely with the author in all of his pathological views. That portion of Professor John Ashhurst's lecture which is devoted to the subject of arthritis of the knee is fine, the author as a master of arthritic surgery delineating the features of his subject. Professor Gaston, of Atlanta, presents a very satisfactory account of a case of fibro-sarcoma of the superior maxillary bone, with its operative treatment; but one can scarcely pass over his use of the antiquated and dangerous A.-C.-E. anæsthetic mixture without a note of disapprovål.

If the reader enjoy the prospect of perusal of a well-balanced and carefully studied consideration of hypertrophy of the prostate, with the luxury of finely executed and meaning illustrations, he may turn with confidence to the single lecture in the genito-urinary section, contributed by Dr. F. S. Watson, of Boston. The present is the first of three lectures which the author is to present upon the subject, and the continuation of his remarks in the succeeding volumes will be watched for with interest.

Easily second in point of excellence, and perhaps equal or even superior to the section on nervous diseases in the opinions of those who incline to the practice of gynæcology, is the section devoted to this later subject, all the papers included in its pages being decidedly above the average. Why the sections of neurology and gynæcology, as special branches of medicine and surgery, should afford groups of more valuable and more scientific papers than the parent sections, is a question that quickly presents itself. Whatever may be the answer, the fact remains, and the practitioners of general medicine and surgery must look well to their laurels lest they be gone. One would wish to consider well the papers of the gynæcological chapter of the volume, but the lack of space precludes; and at any rate when such men as Goodell, Cullinworth, Mann, Fenwick, Polk, Potter, Hart, Skene, Coe, and Mundé write or speak, the critic may well be silent.

The special subjects of diseases of the eye, ear, nose, and throat, and of the skin are quite fully represented, the last lecture in the book, that of Professor Green, of Harvard University, on suppurative disease of the middle ear as a complication of the acute infectious diseases, being particularly interesting.

A. J. S.

A PRACTICAL TREATISE ON DISEASES OF THE SKIN. By J. V. Shoemaker, A.M., M.D., Professor of Skin and Venereal Diseases in the Medico-Chirurgical College and Hospital of Philadelphia, etc. Second Edition. New York: D. Appleton & Co., 1892.

Dr. Shoemaker's work appears in a much-enlarged form in the present edition, and is the largest of the many text-books now extant in the English language. It has been brought up to date by the addition of new matter, the most important of which is that relating to bacteriology in connection with diseases of the skin.

The introductory portion of the work contains a description of the anatomy and physiology of the skin. This is in some respects up to date, but in so large a work a more scientific and thorough treatment of this part of the subject might have been looked for. A careful résumé of our present knowledge concerning the structure of the cutaneous tissues, with references to recent monographs, would have been very useful. The intelligent practitioner who wishes to keep up with the progress of dermatology is constantly meeting with terms newly introduced, of which he naturally hopes to find the meaning in the most recent text-books. But he will look in vain for information here, for the sources from which this part of Dr. Shoemaker's work has been taken are themselves usually second-hand and not the most recent.

The illustrations of the anatomy and physiology of the skin are by no means worthy of the subject. That representing a schematic section of the skin, though crudely drawn, as if an off-hand sketch, is apparently a copy of an old picture which has been reproduced in wall-maps for instruction in the University and Jefferson College for many years past. A good wood-cut from some work on anatomy would have been much more ornamental and quite as useful. The photo-micrographs illustrating this portion of Dr. Shoemaker's work are nearly useless for purposes of instruction. Schematic drawings would have been infinitely more valuable.

While we are on the subject of illustrations we have a word of commendation for the chromogravures which illustrate some of the skin-diseases described. That of Psoriasis, which forms the frontispiece, is an excellent piece of work. The startling realism of the figure adds to, rather than detracts from, the portrayal of the disease. In looking at it one feels not only that here is an affection of the skin, but also that here is a sufferer to be healed. It would be an advantage, however, if more color could be introduced into some of the chromogravures; that of lupus vulgaris loses much by wanting a little red.

The text of the descriptive part of the book is good, and most of the recent advances in dermatology find places under their respective heads. The style is agreeable, and the whole appearance of the work, in spite of the trifling defects to which we have called attention, is most creditable to American Dermatology. The formulæ are bewildering in quantity, and it seems a wonder how any skin diseases go uncured when there are so many recipes to cure them. The index is wretchedly inadequate.

"THE STUDENT'S QUIZ SERIES." "HISTOLOGY, PATHOLOGY AND BACTERIOLOGY."

A Manual for Students and Practitioners. By Bennett S. Beach, M.D., Lecturer on Histology, Pathology, and Bacteriology, New York Polyclinic. Philadelphia: Lea Brothers & Co., 1892.

We hesitate to recommend in glowing terms any book which strives to furnish its readers with a mass of unexplained facts and theories, thinking it better that one should know little and understand it all rather than to know all but understand little. A work of this kind is generally a mere compilation published only to enable the careless student to "cram" for examinations, and enrich its writer, who is seldom raised in scientific or professional standing by such work.

We read in the "Preface" that Delafield, Prudden, Schäffer, Klein, Ziegler, and Fraenkel "have been freely drawn upon," and are perfectly willing to believe it, for



on every page there is a faint reflection of these classics. Indeed, we find no originality in the book. Of its kind it is a very fair sample, giving, as it claims, the *main facts* of the matter treated, and containing a minimum of errors.

We are surprised to find it stated on page 1, that the "nucleus is always present in animal cells," remembering so many millions of red blood-corpuscles lacking in this particular. On page 20, *endothelium* is described as a modified *epithelium* instead of a modified connective cell formation. On page 61 the central canal of the spinal cord is said to be lined with columnar *ciliated* epithelium. We observe that this condition exists only in youth, and that in many cases the canal is without cells, and often obliterated. Although the eye is carefully treated, the only mention of the ear and nose is, "For a description of the ear and nose, see the volume on Anatomy of this series." We fail to see why one out of these three should be selected and the others omitted.

The part on Pathology is not of much value, being too brief to be useful. No flagrant errors were noticed. The eye, ear, and nose are omitted, though the nervous system and genito-urinary apparatus are carefully mentioned.

The Bacteriology contains a few small errors, but is fairly good, except that its brevity and paucity of directions make it useless for practical work.

The whole work is of a type of literature to be discouraged. Of this kind the book is not very bad, and we are sure that should a student learn it by heart, he could not fail to pass his examinations; hence it fulfils its mission in this respect. For the practitioner it is worthless.

J. McF.

### AMERICAN ELECTRO-THERAPEUTIC ASSOCIATION.

At a recent meeting of the American Electro-Therapeutic Association held in the city of New York, October 4, 5, and 6, the following officers were elected for the ensuing year:

*President*.—Dr. Augustin H. Goelet, of New York.

*Vice-Presidents*.—Dr. William F. Hutchinson, of Providence, Rhode Island; Dr. W. J. Herdman, of Ann Arbor, Michigan.

*Secretary*.—Dr. M. A. Cleaves, of New York.

*Treasurer*.—Dr. R. J. Nunn, of Savannah, Georgia.

*Executive Council*.—Dr. W. J. Norton, of New York; Dr. G. Betton Massey, of Philadelphia; Dr. Robert Newman, of New York; Dr. Charles N. Dickson, of Toronto, Canada; Dr. J. H. Kellogg, of Battle Creek, Michigan.

The next meeting will be held September 12, 13, and 14, 1893.

### NOTE TO CONTRIBUTORS.

Manuscript accepted will be liberally compensated or reprints furnished in lieu of such compensation.

It is distinctly understood that all articles accepted are for our exclusive use and are not to appear in any other publication.

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EDITOR.

# INTERNATIONAL MEDICAL MAGAZINE.

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## ORIGINAL COMMUNICATIONS.

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### *THE ACTION OF INFLUENZA POISON ON THE HEART, AND A STUDY OF INFLUENZAL ANGINA PECTORIS.<sup>1</sup>*

BY ROLAND G. CURTIN, M.D., AND EDWARD W. WATSON, M.D.,  
Philadelphia.

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THE former paper on this subject, read before the Philadelphia County Medical Society, was of necessity somewhat crude and hasty, but the subject demands far more attention and careful study, and this must be our excuse for again bringing it before the medical profession.

What is the *cause* of the peculiar condition of the heart during and following influenza? and as a basis for this inquiry, What is the *condition* of the heart itself? In the answer to these questions necessarily lies the key-note to all treatment. Briefly, we may say, that the heart condition is evidently not due to anæmia and a consequent weakened condition of the heart wall. This is shown by the rapid onset of the symptoms, and their frequent rapid subsidence. It is not inflammatory, for inflammations of the endocardium were exceeding rare, and old endocardial trouble was not prone during the epidemic to be aggravated or lighted up afresh, and subnormal temperature generally existed; even articular rheumatism associated with influenza had little tendency to exo- or endocardial mischief. Possibly in some protracted cases the long-delayed fatal event may have been due to nutritional changes in the heart-muscle, consequent, as we shall see later, to continued faulty innervation.

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<sup>1</sup> Read before the American Climatological Association, Richfield Springs, New York, June 24, 1892.



How inextricably influenza was bound up with heart symptoms, heart weakness, and general as well as circulatory depression, the careful observer cannot fail to see. All cases of acute influenza were followed by characteristic nervous depression, sometimes even amounting to a partial paralysis of the muscles in the neighborhood of the catarrhal trouble; some exhibited this depression to a remarkable extent,—not alone in its intensity but in its duration. Whenever and wherever the local process could be detected, depression followed. Where the local catarrh (influenzal) was in its commonest and lightest form (naso-pharynx and upper air-passage), there the general depression was most easily borne and most evanescent. (The duration and intensity of the fever accompanying this local catarrh were in some measure indicative of the amount of exhaustion to be expected.) Since all the catarrhs of the peculiar character termed influenzal were followed in this way, the depression would necessarily seem to be consequent, and produced not by the inflammatory process but by some one or more of its products. And without assuming the bacteriology of influenza to be yet perfectly established, we cannot be far from the actual facts of the case if we believe that a minute growth, animal or vegetable, is the morbid agent in this catarrh, and the only remaining point is to prove, if possible by actual cases and their investigation, how and where this agent acts in producing depression and exhaustion.

Localized simple influenzas of the commonest variety, coming on suddenly and disappearing in a few hours or days, were habitually followed by general nervous symptoms of short duration. Hence in these cases of rapid recovery we need not suppose the system to be germinally invaded any farther than the naso-pharynx and larger bronchi; and the toxic product, if any, formed by such invasion must be responsible for the toxic symptoms. Where other localized catarrhs occurred primarily, as hepatic, gastric, or intestinal, the depression was apt to be more lasting, and where the nervous system seemed to succumb primarily, without any manifest catarrhal process, are we to assume a latent one, perhaps in the gastro-intestinal mucous membrane (spleen), or are we to believe that the nerve-centres and nerve-trunks were themselves invaded, and if so, by what? The actual colonies of microbic germs or their toxic consequent?

Recently-reported autopsies seem to establish the fact that, in the spinal cord at least, actual lesion of a serious character may exist, and if in the spinal cord, of course in any centre, cerebro-spinal or sympathetic, and in any nerve-trunk at any portion of its course.

Superficially this view of the case seems proved by the frequent occurrence of neuritis after influenza; where the progress of the morbid condition can be clinically watched, at its onset centrally, as shown by shifting from side to side in abortive attacks of pain, showing derangement of the nerve-centre, and in its progress, as indicated by pain on pressure, the painful point progressing from centre to periphery,—as, for instance, in the brachial,—where often both radial and ulnar distribution are affected,

until, as the painful point descends below the elbow, one alone is implicated, and in its distribution points back by pain and numbness to the affected nerve.

Internally the problem (in the absence of post-mortem inquiry) is both simpler and more complex. The pneumogastric with its various distributions will account, if we consider it as implicated, for many of the internal manifestations as evidenced in the varying intensity of the lung attacks, at first non-inflammatory, then passing into catarrhal pneumonia or catarrhal phthisis; but this nerve is beyond mediate or immediate touch, and the only way to arrive at conclusions is by comparison, analysis, and reasoning upon the cases brought to our notice. It may be remarked, however, that implication of the pneumogastric will not, as some have supposed, account for all the variety of influenzal manifestations, and while we are forced to the conclusion that the symptoms observed during the disease, and following it, were entirely of a nervous character, the questions still remain: What, then, was the nature of the pathological condition? Was it toxic or morbific, and what systems of nerves were affected? Cerebro-spinal, sympathetic, or both; sensory or motor or both? To discover anything of value we must go over once more the symptomatology of influenza, and especially of the cardiac cases of the disease, with which we are at present concerned.

Following the first explosive epidemic (1889-90), we had many suddenly fatal and very marked cases of heart-failure, more so than at any other period of the epidemic. In the spring and fall of 1890 there were a number of cases with more chronic symptoms of the disease that finally developed heart-failure of a less intense character, the onset and fatal result being separated by a longer interval. These cases ceased to be met with late in the fall of 1890, nor were they noticed to any extent in the succeeding winter and spring.

The outbreak of December, 1891, brought back, however, the same kind of cases, milder in form, for a couple of months, but not to the same extent as the former outbreak in 1889. The symptoms in the old varied from those in the young throughout the epidemic. In the old, intermittent heart was very common and was often associated with irregularity. In the young, there seemed to be rather a simple heart weakness.

In the first epidemic blue lips were not infrequent in old and young; in the last outbreak this symptom was seldom met at any age. The heart was not often rapid in its action even when seriously affected, either in young or old; but a few cases of rapid heart were seen, while the vast majority of cases presented slow action,—less slow in the young and vigorous,—sixty-five to eighty beats,—more marked in the aged and weak, often as low as forty-five per minute. In the last year many cases had symptoms of syncope, even complete syncope, sometimes associated with symptoms of heart weakness, which were provoked by slight causes.

Before considering the nervous supply of the heart and the angina pectoris, or anginose cases, we give a few typical cases of simple heart failure,



as commonly met with. Just such histories as these could be given in great numbers, but a few will suffice.

### SIMPLE HEART-FAILURE.

CASE I.—Mrs. C., aged forty-three, grippe symptoms for a month, with gradual improvement; on undertaking some work sudden heart-failure followed, attended with profuse sweating, syncope, and after this some blueness of the lips and skin. The heart was irregular, weak, and not accelerated materially. The next day, on rising from bed, she had immediately a recurrence, and subsequently three more, each lighter than the preceding. She had with this condition, at the upper border of the third rib immediately above the left nipple, a tender point on percussion and pressure.

CASE II.—Mrs. C., aged seventy, had apparently recovered from the influenza about two weeks, when, after a long and hurried walk, she was seized with oppression, distress, and a sense of weakness; pulse at the wrist weak but regular; heart beat fifty-four; respirations nearly normal; profuse perspiration. The first attack lasted four hours; the next day she had two attacks, each brought on by attempting to rise, and on each succeeding day for over a week one or two, gradually becoming much lighter, until at last they occurred only in the morning when sitting up to eat. Complete recovery.

### LONG-CONTINUED INTERMITTENT HEART.

CASE III.—F. P., aged twenty-five, was left with intermittent heart, more or less persistent; could be brought on by physical exertion, menstrual period, excitement, or by eating. This condition had lasted a whole year; when under treatment by cactus grandiflora, alcohol, and caffeine, with quinine and strychnine, rest and care, and later on with hypophosphites, symptoms finally yielded.

CASE IV.—Dr. L. had grippe in the winter of 1892. This was followed for six months by palpitation and dyspnoea; pulse, while at rest, 52; on slight exertion, 92.

### PERSISTENT SLOW HEART.

CASE V.—J. R., aged sixty-two; had attack of grippe in January, 1892; two weeks in bed; had nausea, dizziness, and palpitation. The first day he attempted to resume business, his pulse, when seen shortly after, 58 to 60 (previous pulse when in health, 75 to 80), and while apparently in good health and going about it remains at 60 up to June (five months).

CASE VI.—M. L. W., aged fifteen; attack followed shortly after apparently rapid recovery from the laryngeal form of influenza; began as sudden weakness, while walking to school; became more marked for several mornings, and she was finally sent to bed; prostration very great for a week; pulse under 60, rising on slight exertion to 100 or even 120; complete but slow recovery, with persistent numbness of left arm.

We now come to a few cases illustrative of the rapid alternation of heart symptoms with other conditions.

### MIGRATORY AND INTERCHANGING HEART SYMPTOMS.

CASE VII.—Mrs. K. C., aged sixty-four; grippe-lung with marked hæmoptysis; sudden subsidence of physical signs; heart failure with *rapid* beat, and this suddenly replaced by *delirium*, and early recovery.

CASE VIII.—A. B., grippe; catarrhal pneumonia; heart-failure (rapid heart); enteralgia, and lastly gastric catarrh.

CASE IX.—E. K., aged sixty-eight; grippe; paralysis of deglutition; acute delirium completely disappearing; heart-failure; pulmonary œdema, with blue lips and slow pulse, and death in three hours from appearance of heart symptoms.

CASE X.—T. P. C., aged thirty-four; grippe for nine days; fifth day after, heart became irregular; temperature 103; pulse dropped every third beat; no pain nor uneasy sensation about the heart; impulse regular but weak; excessively nervous, with face more pale than usual. Three days later, still missing every third beat; two days later, every eighteenth to twenty-fourth beat; excessively slow recovery of strength. Pulse not accelerated; no sensation of palpitation. The heart in this case was simply intermittent or weak.

CASE XI.—N. M. C., aged twenty-four; nurse; had severe influenza December 3, 1889. Subnormal temperature and vomiting for the first four weeks; after the first two days after partial recovery and return to nursing, she had pallor, nervousness, faintness on exertion. Left arm and both legs swollen, with marked blueness and red mottling, increased by cold or fatigue, resembling the milder form of Reynaud's disease. This discoloration improved under treatment,—hypophosphites, stimulants (alcohol), and rest.

### RÉSUMÉ OF THIS GROUP OF CASES.

The youngest case was fifteen years old (one case, not included in above list, of five years, was met with), the oldest seventy-eight. Most were past middle life. The pulse was generally slow while at rest, but was hurried by slight exertion,—eating, especially breakfast, was a frequent excitant. Temperatures were generally subnormal, 97° to 97.5°, with a few exceptions. In rare cases there was venous congestion, but generally not; generally it seemed only a change in the rapidity of heart action without any in muscular force. The heart was regular and slow; regular and fast; intermittent, neuralgic, irregular, and slow, and in these latter the absence of bluing of the surface would seem to indicate that the heart was able thoroughly to carry on the circulation of the blood. In some cases the surface was blued independent of any cardiac influence, from vaso-motor disturbance. This was so marked as at times to cause suspicion that the patient had a mild form of Reynaud's disease.<sup>1</sup> The nervous phenomena of influenza and its sequelæ resembled by turns every known form of neurotic disease. The force of the poison seemed to be centred in the cardiac nerves. These cases seemed to be developed as a result of the long-continued action of the influenzal poison, commencing more frequently in the late spring and early autumn; seeming to be a nervous form of influenza, some assuming this form and some running into a distinctly catarrhal fever.

Angina in several cases followed catarrhal fever, which is a further proof of the identity of the cause of the two affections.

### ANGINA AND ANGINAL CASES.

In old people with angina pectoris previously, sudden death was quite common, and old gouty cases were especially liable. In the young and vigorous anginal symptoms were frequent, but death seldom, if ever, occurred. Painful attacks of the heart were very rare in old crippled hearts.

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<sup>1</sup> See Case XI.



A few of the marked cases noted will be given briefly, and will illustrate the variety of cases met with; fully seventy having been seen by the writers in the last two years, most of them following immediately upon attacks of influenza or its sequelæ, but some where no such preceding attack could be clearly made out. From their close resemblance to the others it seemed fair to infer these were due to the same predisposing cause. The exciting causes were the same as those of ordinary angina,—emotion, exhaustion, indigestion, venery. The cases occurred most often preceding an unfavorable change in the weather,—on damp and murky days, with east or easterly winds.

*Duration.*—One case ran over three months, in which the paroxysms were broken or interrupted by catarrhal pneumonia, by asthma, and by influenzal rheumatism, these suddenly in turn replaced the angina, which on the cessation of each as suddenly returned.

*Location.*—The chest pain was generally on the left side, below, above, to the right, or to the left of the nipple, sometimes extending to the point of the shoulder, elbow, or even the wrist, and sometimes to the ulnar and at others to the radial distribution, occasionally to both (or parts of both); often all round the arm, or in front or back, outer or inner side. A numb sensation was experienced either during the pain or before or after. Some cases started with numbness or pain at the finger-tips or wrist, from which the sensation rapidly travelled up and merged in the breast-pain, often almost or quite as severe as “breast pang,” with, in some rare cases, the feeling of impending death. Most of those manifesting fear were old angina cases and were aged people, but some few were unfamiliar with the symptoms and previously vigorous. There was sometimes the feeling that the heart was bursting; symptoms of thoracic compression and suffocation were quite common, and thus caused the patient to take short respirations and keep quiet. Sometimes the heart was accelerated; sometimes slowed. Some hearts were excitable, some not. The symptoms of angina seemed to be followed or interchanged with simple weak heart without pain. There was also often arhythmia.

A few cases may be given illustrating the types of angina and anginal attacks.

CASE XII.—Dr. S., aged sixty-two, in the winter of 1892 had well-marked influenza, and for the next two months he had palpitation on exertion, with intermittent pulse, irregular at times. First sound of the heart was very short and faint; no murmur. A little swelling of the feet and leg œdema. He had marked pain just above the left nipple, going to point of the left shoulder and down the front of the arm and forearm to the wrist, the thumb, index, and middle finger becoming numb and remaining so after subsidence of the pain for some hours. The symptoms yielded to iron, quinine, digitalis, and hypophosphites.

CASE XIII.—Mr. J. R. S., eighteen years old, one year ago had grippe and was sick a week; four months ago he had the first palpitation; and a few days ago, after violent exercise in the gymnasium, faintness, pain over both mammary regions and across the sternum, going down the left side of the chest and down the arm to

the elbow. The pain was exceedingly severe in the chest and down the arm, and greatly increased by each heart beat. Dancing and hearty meals would develop an attack. He rapidly recovered under treatment.

CASE XIV.—This illustrates the association of this epidemic with gout. Mrs. M., sixty-one years old. Father had had gout, from which the fingers and toes had been swollen for many years. Seven weeks after an attack of influenza, after any exertion she would be seized with shortness of breath, pain under the costal cartilages to left of ensiform, radiating to the left shoulder and down to the elbow. She had the same symptoms after the gripe two years ago.

CASE XV.—Mr. J. H., thirty-three years old, had influenza, "influenzal pneumonia," asthma, and attacks of angina for one month. This asthma with slow recovery and subsidence of anginose symptoms. The pain was excruciating, with shortness of breath, variable pulse, not rapid, subnormal, the pain going to the shoulder-point and extending down the outside of the arm to the elbow and inner aspect of the forearm to the little and ring fingers. These symptoms continued three and a half months before recovery.

CASE XVI.—Dr. P., aged fifty-three, had pain at the juncture of the cartilages with the lower end of the sternum, extending through the body (apparently) to point of the left shoulder. The pain was severe, but no fear of death. The attacks lasted two or three minutes, and occurred every few days without ascertainable cause.

CASE XVII. (Being one of seven cases of similar nature seen by the writers.)—Mrs. Y., a widow for ten years, has attacks of anginic pains commencing in the clitoris, throbbing and shooting pain up to the umbilicus, left shoulder, and down the left arm, a numbness with and following the pain. Worried and annoyed but not frightened. No fear of death.

CASE XVIII.—J. T. F., aged forty-seven, had mild attacks of influenza from which she seemed perfectly recovered. On May 18 she walked in the country a mile and a half from the station to her country house and returned the same way. On reaching home was tired and went to bed early, and experienced nothing amiss until she attempted to rise in the morning, when after walking a few steps she became dizzy, had a feeling of numbness and pain beginning in both hands, running up the arms, and followed at once by intense precordial pain, violent palpitation, retching, and syncope. It was some minutes before she recovered consciousness, and any attempt to rise or sit up was followed by similar attacks, each preceded by the same feeling in the hands and arms. Food even in small quantity excited the pain, palpitation, and nausea. These attacks ended in profuse sweating. The onset was attended with a dusky flush of the face, but then left her very pale. Under rest and alcoholic stimulation the attacks became after the first day less and less violent, and during the last week of convalescence were confined to one a day, shortly after eating breakfast, after which she could sit up and even walk about a little.

CASE XIX.—C. G., aged fifty-seven, had attacks of a similar character but lighter while going about; they occurred between eleven and twelve o'clock, generally when on the street, but under treatment she recovered completely in a few weeks.

CASE XX.—L. O., aged forty-eight, had a similar history of light attacks coming on at irregular intervals, generally at a meal. Violent precordial pain, numbness in one or both arms, and at times syncope; after about three weeks she was seized with a more violent pain, fainted, and was unable after this for three weeks to rise, every attempt bringing on faintness, numbness, pain, and nausea. During this time she was unable to take food except in the smallest quantities, any attempt to give more completely demoralizing the stomach; in fact all digestive power seemed lost; even turning the patient from side to side in the bed would bring on a paroxysm, while the pulse at the wrist seemed good in apparent syncope. Temperature remained at 97° for two weeks, taken four times in twenty-four hours. Recovery was rapid after this and temperature normal; strength seemed to have completely returned.



## HEART INNERVATION.

*Pathology.*—The generally accepted views in regard to the innervation of the heart do not prevent the supposition or hypothesis that both rapid and slow action may be produced by either excitation or partial interruption of the function of the pneumogastrics. These nerves are also concerned in ordinary angina, hence we may suspect that the poison of the disease may act as an irritant, stimulant, or sedative to this nerve, or that (and in the absence of post-mortem research we are free to theorize) the nerve itself may by inflammatory changes, due to its actual invasion by the diseased process, be partially cut off from the general distribution, a partial imperfect section, a paresis produced by disorganization. In such cases, especially if both nerves be affected, death probably occurs, preceded by irregular and tumultuous action for a few moments; while in other cases, from the evanescent symptoms, we must either conjecture that the function of the nerve is affected temporarily, or that the pathological changes are so slight in character that a return to healthy action may be easy and rapid.

The sympathetic and vaso-motor system may also play an important part in some, as it is supposed to do in many cases of ordinary angina, indeed some cases we have recorded seemed to be wholly or almost wholly due to this, as where flushing or blueness occurred paroxysmally without manifest cardiac disturbance.

Whether the irritation of the nerves was direct or reflex, whether the cardiac ganglia and the inhibitory ganglia of the heart itself were affected, are questions for further inquiry; the latter query arose after studying the cases where synchronous action was lost, or the condition known as arrhythmia.

*Treatment.*—For simple heart-failure, first in importance was alcohol, after which citrate of caffeine and cactus grandiflora were well borne by the stomach. Ether and ammonia often were not. Citrate of caffeine must be given in small dose,—one-grain doses are large enough; doses of three to five grains often produce headache and general nervous excitement. Digitalis and strophanthus were of use; atropia seemed to exercise a special influence for good. Nitro-glycerin seemed to act favorably with aged persons and those having a gouty diathesis at any age. Strychnia is often of great service. It should be given in small tonic, not in heroic, doses. In anginose cases sometimes it was found useless. If the case is anæmic it is important to build up the general system by hypophosphites, iron, strychnia, and quinine. Dyspepsia must be cured or relieved by peptonized food or by pepsin itself: in fact great care must be exercised in feeding; meat often causes recurrences; a large amount of any food was generally badly managed, and meals towards evening were badly borne. Cod-liver oil and malt benefited chronic cases.

*Infrequent Heart.*—Avoidance of mental worry or actual cares, or any attempt to work. Encouragement was of great use; the heart should not be much or often examined, nor any opinion unfavorable to its strength or soundness expressed. Stimulation (alcoholic) was vitally necessary.

Arsenic was valuable in anæmic cases, and one-drop doses of Fowler's solution before feeding seemed in some cases to increase retentive and digestive power. Bromide of ammonium quieted restlessness; sulphonal generally had a good effect, but was occasionally dreaded by the patient, but generally it was the most satisfactory hypnotic, often combined with bromides. Paraldehyde when well borne was useful.

The prognosis was hopeful, in almost every case, no matter how desperate it seemed, except in the aged, with organic heart-disease, cardiac degeneration, and senile weakness. Recovery was the invariable rule in the young and robust.

Treatment of the anginal cases differed but little from that employed for weak hearts from other causes. Excessive stimulation and over-stimulation of the nerves was to be guarded against, for it sometimes aggravated the symptoms. The quieting effect of rest in bed, with the attending protection from cold, fatigue, and draughts, was of the greatest importance in the treatment of the anginose cases.

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*A CASE OF EXTREME PROSTRATION FOLLOWING AN  
ATTACK OF INFLUENZA; REPEATED THREATENED  
HEART-FAILURE; PECULIAR CARDIAC IRREGULAR-  
ITY; RECOVERY.<sup>1</sup>*

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MISS G., a maiden lady of about twenty-five, came under my observation three or four years ago, with symptoms referred to the heart.

She suffered at times from palpitation, partial attacks of syncope and vertigo, and dyspnœa upon active exercise. She was also the victim of a moderate degree of indigestion. There was no history of rheumatism. A soft, blowing, mitral systolic murmur at first suggested mitral regurgitation, although there was no interference with the normal sounds, but this was eventually excluded, by the absence of any accentuation of the pulmonary second sound, by the absence of hypertrophy, and by the subsequent history of the case. The murmur was then attributed to slight roughening of the leaflets of the mitral valve. This diagnosis was recently confirmed by Dr. Henry Conkling, of Brooklyn.

Under tonic treatment, with regulation of the digestive function, the symptoms disappeared, though the murmur continued. The patient was always, however, decidedly neurotic.

About December 27, 1891, she was attacked with influenza of a mild

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<sup>1</sup> Read before the American Climatological Association, Richfield Springs, New York, June 24, 1892.



type. December 31, pneumonia developed, of the lobular character usual in influenza. It ran a moderate course and cleared up satisfactorily in about a week. Instead, however, of convalescence proceeding as was hoped, the pneumonia was followed by extreme prostration, and for the next few days she grew steadily weaker, and on January 10 her condition appeared almost hopeless. Stimulation was pushed to the greatest degree, including hypodermics of camphor. To this she responded fairly well and rallied slightly, but on the following day the threatened heart-failure was repeated. Again there was a response to heroic stimulation. During this time the pulse had been weak, and varying from 92 to 110.

On the evening of the 11th, the day of the second collapse, the pulse at 7.45 P.M. was 102, weak and small. Fifteen minutes later the pulse was observed to be 58, larger, but weak and soft. The collapse occurred about an hour later, the pulse continuing slow. It continued slow, with the soft, large character, until about noon of the following day, when it suddenly changed from 52 to 104, then during the afternoon rose to 110, then gradually fell to 96, and at 5 P.M. changed suddenly to 48. During this time the patient had been growing somewhat stronger, and the character of the pulse, in both its phases, had improved. For several days the patient continued to gain slightly and slowly. But the sudden changes for the worse, which she had experienced, seemed to render it expedient that she should be watched very closely, and during this time either my friend Dr. W. H. Hall, who had kindly responded to my call for assistance, or myself was in constant attendance.

Naturally the peculiar action of the pulse was the subject of close attention, and as it continued for eleven days it gave us ample opportunity for observation. On several occasions we were able to observe the change from the rapid to the slow action, and *vice versa*, with our fingers on the pulse. On one occasion the transition occurred, back and forth, three or four times in a minute. It would occur in this wise: The pulsation being 100 to the minute and regular, a beat would drop out, then after a few beats another, and after a shorter interval a third, and so on at lessening intervals until we had under our fingers a regular pulse of 50, larger and softer than the former. After a longer or shorter time, sometimes only a few seconds, the process would be reversed, intermediate beats falling into their proper places, until the original pulse-rate was restored. The heart-sounds corresponded to the pulse-beats. At no time was there heard any third heart-sound, as of an ineffectual systole, when the pulse failed to record the contraction, though such a phenomenon was carefully watched for, nor when the slow pulse-rate was fully established was there any suggestion of a minor pulsation between two major ones, though this sometimes occurred during the transition. In these respects the phenomenon differed from the descriptions of the *pulsus bigeminus*, though I cannot but regard it as of the same character but more complete.

This condition of things continued, as I have said, for eleven days, or until January 22. During this period occurred the most profound collapse of all. On the afternoon of the 14th menstruation commenced, about ten days

in advance of the proper time. During the night the patient suffered from excessive vomiting and sank rapidly. A hypodermic of camphor brought some slight response, but she again relapsed, and early in the afternoon of the 15th was apparently *in articulo mortis*. The skin was livid, the extremities cold to the shoulders and hips; the pulse imperceptible, and the heart-sounds nearly so; the countenance hippocratic. Stimulants were administered hypodermically, by the rectum, and by the skin by means of cloths soaked in hot alcohol. And again, after some hours, the patient rallied. During this time the pulse (when it could be perceived at all) had maintained its slow character, from 40 to 50, and so continued till about the next noon, when it changed to 92, and then continued to vibrate, back and forth, as before.

From this time the patient gained, and, as she gained, the peculiar character of the pulse gradually disappeared, the slow pulse appeared less frequently and lasted a shorter time. On January 22 the beats fell from 96 to 48, increased to 52, then jumped to 104, and this was the end of the sudden transitions. On February 1 the patient sat up in bed. She gradually gained in strength, and is now about as well as before the attack, though she says she becomes tired a little more easily. The cardiac signs are as before the attack except that the murmur is less loud.

Beyond the somewhat vague suggestion that the remarkable action of the heart was due to the toxic action of the disease upon the cardiac centres, I have no explanation to offer for it, and I have reported the case in the hope that some member of this association will be able to offer some hint tending to establish a more definite theory.

[This case excited considerable discussion, and the consensus of opinion was that the sudden changes in the pulse were due to the dropping of every other beat.—ED.]

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## THE VALUE OF CONSERVATISM IN THE TREATMENT OF SOME COMMON NASAL AND THROAT DISEASES, ESPECIALLY AMONG CHILDREN.<sup>1</sup>

BY BEVERLEY ROBINSON, M.D.,

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THAT wisdom lies in the middle course is as true to-day as it was when the old Latin dictum *in medio tutissimus ibis* was first written. Yet how far removed from wisdom in practice do we find the evidences about us in almost every special department of medical and surgical routine! In some instances these errors are unavoidable, owing to the limitations of our knowledge; but many more are manifestly due to the ignorance or pre-

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<sup>1</sup> Read before the American Climatological Association, Richfield Springs, New York, June 24, 1892.



sumption of those who know but little and would fain create the impression that they know all things.

To the well-versed general practitioner these are truths that are daily brought to his attention. Sometimes it is the general surgeon who ignores the fact that there is a practice of general medicine; sometimes it is the gynaecologist who ignores other paths than his own; or, again, it is the oculist, the dermatologist, the aurist, the orthopædist, the nervous specialist, the syphilographer, and still others. I do not intend to show, however, how often one meets with this narrow exclusiveness in other special departments, bringing much trouble to many, but will limit my remarks to some common nasal and throat diseases. The modern specialist in laryngology often reproaches his brother practitioner, who only occasionally is called upon to use his laryngoscope or rhinoscope, with too great delay in bringing certain diseases to light, and in not properly doing for them after they are discovered. Take, for example, a small child, from infancy up to four or five years of age, who has the "snuffles" with decidedly obstructed breathing, what shall we do for it? The family physician contents himself with prescribing some aconite or nitre, the external use of an emollient ointment over the nose, and, perhaps, a hot foot-bath. If there be much obstruction, such treatment will be useless, because the soft parts are already thickened through infiltration, and will not yield at all to this sort of medication. Under these conditions, one or more applications at suitable intervals of glacial acetic acid, equal parts of carbolic acid and glycerin, or of mono-chloracetic acid, by means of a flattened probe wrapped with cotton will usually relieve the child's breathing sufficiently to render further or different interference quite unnecessary. Indeed, if other means are employed of a more severe or radical nature, the result is usually far from satisfactory. Suppose, for example, in a case similar to the one mentioned, stronger acids, like chromic acid, or nitric, be employed, or the electro-cautery be the instrument selected, what results? It is true, if the child be held securely, that one or other means may be used by an expert without much risk of doing harm at the time of the local interference, which shall be immediately recognized. On the other hand, it will be readily appreciated that the use of stronger acids, or the cautery through the nasal passages, leaves behind a surface which in a few days is sore, and, so soon as the first slough comes away, involves a more or less considerable area, according to the conformation of the soft parts. This loss of tissue will frequently require almost daily care for weeks to heal satisfactorily. It becomes imperative, therefore, to continue local treatment, or else, in some cases, adhesions between opposing surfaces of mucous membrane will form, which, unless broken up and again treated persistently, will make the child's final condition most unfortunate. With most young children this treatment necessitates their being held forcibly, so as to allow of an accurate rhinoscopic examination. Moreover, the local applications essential to effect a cure are usually more or less painful or frightening to

the child. The former statement is invariably true whenever the powerful cauterizing agent has come in contact with obstructions far back in the nasal passages.

It must also be remembered in these cases that the precise points where loss of tissue has taken place cannot be seen ordinarily with our best means of illumination, and with or without the use of cocaine. It follows, therefore, that our local treatment is not only difficult but also somewhat uncertain as to its utility and result. Let it be remembered also that the nasal passages of children, as in adults, without exceptions, are markedly irregular. Even the septum itself is very rarely, indeed, a smooth, perpendicular wall on either side, separating two adjacent cavities equal in extent and capacity. There is almost always a deviation, an inclination, a prominence, a spur on one side or the other. In order, therefore, to burn even the engorged turbinated bodies properly and effectually, one must bend the applicator in a suitable manner, after one or more explorations with it of each nasal passage, so as to be sure that when the acid is put on one side of the cotton, we can be quite confident that the applicator can be passed as far back as the naso-pharyngeal space.

There are instances, I know, in which the annoying obstruction is occasioned almost exclusively by certain infiltrated areas, anteriorly or posteriorly, over the turbinated bodies. These are the relatively simple cases, and particularly so, if the swelling is anteriorly situated; for, if the cauterizing agent be well applied here, evident relief to nasal respiration will soon follow.

A small quantity of chromic acid deftly employed only once may work wonders. Along-side such cases, unhappily, are those instances, and, as I believe, far more numerous ones, in which it is the general swelling of mucous membrane, as much almost over the septal surface as upon the turbinated bodies, which occludes the nasal passages and prevents free and normal respiration. This being admitted, what do we want as an effective curative agent for local use? Manifestly, one which will produce, if possible, a moderate slough and yet without risk of adhesions being formed between adjacent surfaces. I have already told you of several drugs that I have used dozens—I might say hundreds—of times, without, so far as I know, ever having had reason to regret their employment. No injurious results of any kind have occurred, and frequently the greatest relief to breathing has followed one or more light cauterizations. It is not essential for such applications to make use of cocaine previously. First, because the little operation is quickly accomplished; and, secondly, because the pain is slight and lasts but a moment; and, third, because cocaine does not relieve the child at all of the mental dread it suffers, for this is just as great with the local anæsthetic effect of the cocaine as without its use, in most cases. Sometimes I only coat the outer side of the cotton-wrapped applicator with the agents named previously, covering the side towards the septum with vaseline. But in a great many cases I take no such precaution, but simply dip the applicator in any one of the agents mentioned and pass it



through and over all portions of the nasal passages which seem to be in any degree the cause of nasal obstruction and distress.

Of the agents mentioned I prefer mono-chloracetic acid, as being the most powerful of the three. If I suspect the presence of a nervous element, and there has been a great deal of previous or intercurrent sneezing, I make use preferably of carbolic acid and glycerin, as I am confident that it has a most happy effect in curing peripheral neuritis (?) of the nasal passages. After making either of the applications, but particularly after the use of the mono-chloracetic acid, I like, as a measure of precaution, to see my patient within three or four days, even if I do absolutely nothing except spray the nasal passages with Dobell's solution, or albolene and carbolic acid. I am guided somewhat as to what I do by the nasal respiration. If it be tolerably free and even, though no white slough has been blown out previously, I simply use one of the sprays mentioned. If much obstructed, I pass gently through the nasal passages a graduated sound in hard rubber or soft metal,—I say gently, because I consider it wisdom not to push away forcibly any dead tissue not yet wholly separated from the mucous membrane beneath. As a rule, a varying quantity of white shreddy membrane separates itself from the nasal passages after a cauterization with mono-chloracetic acid. In the case of older children it may be and frequently is blown out with the nasal discharge. In very young children it is finally carried off piecemeal with the spray or pushed back in the throat by a later use of the sound.

In many cases of nasal obstruction, either acute or chronic, due mainly to engorged or permanently thickened pituitary membrane, the ears become inflamed and often suppurate. It is claimed by not a few that the aural complications are the direct and almost necessary sequel of these conditions. No doubt such judgment is frequently correct, and hence the methods of treatment just described should be insisted upon and are all the more essential as regards their practical importance.

It must, however, be admitted, I believe, by every well-trained and experienced observer that, in a large number of cases, the nasal obstruction has apparently very little to do with the outbreak of the aural difficulty. The two inflammations, that of the nose and that of the middle ear, march concomitantly, and the latter cannot truthfully be said to follow or be caused by the former. If other evidence were wanting to prove the correctness of this statement, it may be added that many children, as well as adults, have no obstructive disease of the nasal passages, no obvious catarrhal condition of the mucous membrane lining them, and yet, unquestionably, are great sufferers from impaired hearing and all the subjective phenomena connected therewith. Such cases are indeed difficult accurately to note and follow among children, even of an older growth. Among very young children I believe it to be impossible. In adult cases there are numerous instances of this sort which I have assigned to the category of rheumatic disorders. Many accompanying conditions prove the accuracy

of this judgment, as well as the purely negative results obtained at times from nasal and throat inspection. This opinion is further supported by the well-ascertained results of long-continued anti-rheumatic treatment and rational management of the dietary and general hygiene in just such cases. Whenever such cases are far advanced, we may be able, of course, to observe alterations in the membrana tympani itself which indicate clearly the advance of abnormal local changes in the ear. Thus, the membrane may be thickened, of a dull-gray color, and sunken. It may not vibrate to sound-waves as it should, or be moved appreciably by inflation methods. And yet, so far as one can determine, there is absolutely no obstruction in the entrance or exit of air through the Eustachian tube, to or from the tympanic cavity. In small children I have endeavored, often without success, to interpret such cases properly. Usually, however, vague generalized pains from which the child suffered and which rendered it restless and peevish, or the general anæmia, want of appetite, sluggish or disordered bowels, the urine cloudy and loaded with urates or uric acid, at times the almost arrested urinary secretion, have put me on the track of the underlying dyscrasia. I have then, and then only, been of real use to the little sufferer in instituting proper remedial measures.

Several years ago the attention of all throat specialists was particularly directed to the frequency and injurious influence of adenoid vegetations in the naso-pharyngeal space. While it seems clearly established that these growths have been less attended to than they should have been, and that imperfect operatory methods were perhaps to some degree the occasion of it, yet it is evident to careful observers that it is an exaggeration always to attribute great importance to their presence. The lymphoid development in the naso-pharynx does not appear to me necessarily abnormal, any more than a certain size of faucial tonsil is. I cannot believe that we should measure the presence or quantity of disease by the size of organs, and it seems to me quite as erroneous and one-sided a view to hold that every adenoid growth in the naso-pharynx should be removed, as to lay down the law that all tonsils which can be seen in the fauces are pathological. The latter view, as we all remember, was strongly affirmed in a memorable discussion before the Academy of Medicine last winter. How many exaggerations in other departments are daily proved to be the result of imperfect observations and narrow views. We know that many ovaries and tubes which would have been removed only a year or two ago can now be surely saved by proper drainage of the uterus. The radical cure of hernia, in many cases thought only fit for operation, is now often disclaimed, and the patients are more wisely told to wear a truss. The thousands who flocked to Berlin for instruction about or inoculation with tuberculin, now see in it the exaggeration of a not too well balanced mental appreciation, which always thinks well of novelties, or listens with keen appreciation to the enthusiastic gush of a well-intentioned physician, perhaps, but also of one who sees things solely from a very limited standpoint. In many in-



stances, no doubt, there can be little question that impaired hearing, imperfect nasal respiration, secondary morbid effects upon the intelligence, the facial expression, the condition of the chest walls, the growth of the child, are all to a large degree dependent upon the continued presence of an abnormal development of adenoid tissue blocking up the naso-pharynx. In these cases, there can be no hesitation in the mind of any one that such growth should be gotten rid of by what appears to be the safest and best method. But how many small children there are who, just as they have a faucial tonsil projecting somewhat beyond the faucial pillars, have also a small adenoid growth or a hyperplasia of adenoid tissue in the naso-pharynx, which occasions no obvious disturbance in any way, and which therefore, in my judgment, may be properly let alone. Now, then, even if this were still my judgment and if an operation for its removal were absolutely innocuous, I might be satisfied to let this matter rest about where I have actually found it. But such is not the case, according to my observation. Damage greater than any caused by the adenoid growth may be readily occasioned by operative interference. Again, and although operative interference may not seemingly be the occasion of any apparent detriment, who knows but that such hyperplasia of tissue is useful in some way in the purposes of the economy quite as much as a faucial tonsil is? I cannot believe that an indiscriminate desire to do something is either wise or honorable. It may be either of these to a benighted and narrowed vision; it cannot be to the broader intelligence that sees the interdependence of every organ of the human body, even though unable to know and mentally grasp all the fine and intricate details of this relationship.

What are the operative procedures most in vogue at present? One is by means of different forms of cutting forceps; another, with certain forms of curette; a third, with the protected or unprotected finger-nail. They all have advantages, disadvantages, supporters, and criticsers in different cases. Undoubtedly, they all have their indications or counter-indications, having regard to the case and the operation. It is a fact that in children we are obliged to rely in many instances upon our tactile sensations almost exclusively to determine, as far as may be, the conditions present in the naso-pharynx. Theoretically, a rhinoscopic examination should be very serviceable, but it is in reality rarely so, on account of the restiveness of the child, the fact that he is unable to hold his mouth and tongue in the way it is necessary to breathe as we would wish. Besides, the opening between the margin of the soft palate and pharynx is often contracted, owing to relaxation of the soft parts and the presence of more or less enlarged tonsils. When the operation is undertaken, the forceps must be guided in grasping the growths, not by sight, but by our sense of touch, and this touch as it is with the finger of the hand other than that which makes use of the instrument, we must recognize how all biting forceps, even the best, leave much to be desired. In a degree, of course, the curettes are objectionable also, but not in my opinion to the same extent. The best of these that I have

seen and used is that of Gottstein, provided the curve of the distal extremity is suitable. When, also, the cutting edge of the instrument is only moderately sharp, I do not believe serious injury can result from its careful use, either to the pharynx, Eustachian tubes, or palate. Despite this statement and the fact that the Gottstein instrument can be, and should be, employed without the use of an anæsthetic, I still believe that the best instrument yet devised for very many cases is the unprotected finger-nail. With the mouth of the child held open with an O'Dwyer's gag, similar to the one employed for intubation, and the child's arms, legs, and body wrapped in a sheet doubled once or twice and pinned down the back with strong safety-pins, two or three introductions and thorough scrapings with the right index finger-nail are sufficient to give the child sufficient freedom of respiration, so far as the naso-pharyngeal condition is concerned. Of course, there are exceptional and unique cases where the adenoid growth is excessive or resistant and dense. In these instances Gottstein's curette becomes a necessary instrument to use. In a few cases, also, it may be, and probably is, essential to put the child under the influence of an anæsthetic and makes use of Gradle's or some analogous form of cutting forceps. The objections to etherization are, however, many, among which the risk of blood running into the trachea is no doubt the greatest. Minor objections, of course, are those which pertain to the use of anæsthetics in almost all operations around the throat or in the naso-pharynx. Innocent, doubtless, as the foregoing operation is in many instances, still it has its disadvantages, and among these, I must conclude, is one not often spoken of,—viz., the possibility of inflammation of the ear resulting from it, even when it was undertaken in part to prevent this complication.

In my remarks, however, I do not wish to err on the side of over-conservatism, and this I must acknowledge is a fault that the general practitioner is often guilty of. My observation leads me to believe that adenoid growths are not usually an isolated condition. They are frequently accompanied with nasal obstruction from chronic thickening of the turbinate bodies, or with considerable enlargement of the tonsils. It will depend upon the judicious appreciation of the practitioner as to which condition he regards as most important, having in view the question of causation of one condition by the other. Of course, all conditions may be treated successively or at the same time, but, if the treatment be operative, the latter manner does not seem indicated, as a rule. From the stand-point of the *general* physician, it is seldom sensible to seek to attain by continuous treatment, medical or surgical, a perfect state of juxtaposed organs. Frequently we find, if we rid the patient of one evident pathological condition which seems the beginning, as it were, in the morbid chain, the others are slowly modified favorably, and ultimately may disappear altogether. No one can dispute this in youth, as regards the frequent and great diminution of enlarged faucial tonsils, and I see no reason for holding a contrary view of adenoid growths in the naso-pharynx.



We now come to the frequently-discussed question of how and to what extent to treat faucial tonsils when chronically enlarged in childhood. I confess that, for one, I do not believe in the almost indiscriminate use of the guillotine in such cases. If the tonsils are manifestly diseased, much enlarged, or cause visible interference with healthy functions, then they should be removed, at least in part. I do not think their entire removal is often required, as I am confident they shrink and tend to disappear when only a portion of them is properly removed. I do not believe, and, indeed, never have, that in the majority of suitable cases among children, the ablation of a portion of each enlarged tonsil with the tonsillotome, provided adhesions with the anterior pillars where they exist are separated, is apt to be accompanied with either alarming or very annoying hemorrhage. I do believe, however, that every case requiring tonsillotomy should be carefully considered before the operation is undertaken; and, further, that it is always prudent to be prepared, as far as may be, for the sudden appearance of quite sharp hemorrhage. This I know is regarded by many as an evidence of over-caution or timidity. For my part, I think it is proof of good sense and judgment. The inclination to-day towards operative procedures in all specialties nearly, blinds one perhaps too much to the utility of wise government of the organs somewhat removed, and yet which influence so markedly the healthful condition of the nose and throat. How often does it occur to me to see children who are evidently great sufferers from obstructed noses, post-nasal catarrh, relaxed pharynx, elongated uvula, congested fauces and tonsils, obstinate cough, relieved almost completely by instituting a suitable medication and hygiene which will prevent their portal system from being constantly taxed and engorged, or which will eliminate some *materies morbi*, like the poison of malaria or the acid of lithæmia, which produces surely the nervous disorders, and the relaxed mucous membrane of the upper respiratory tract that will defy the efforts of the most skilful specialist permanently to relieve. These little truths which I have brought to your attention to-day I have many times considered and written about from different stand-points. I do not claim that I have said anything new; I do not know even that some here present will not properly accuse me of vain repetition. My excuse must be that despite the commonness of my narrative it is none the less important. Steady and persistent effort is required from those men in our profession who clearly discern where exaggerated specialism has led us, to obviate or arrest its evils.

A final thought which I cannot too strongly emphasize is this: Many operations, as they are now performed on the throat or nose, are *not really curative*; they are done ignorantly or audaciously, so that the patient is compelled to be treated for a long while merely to cure the immediate results of the operation itself. Often after much expense, suffering endured, and time lost, the final condition of the patient is no better, often worse, than it was in the beginning. One naturally asks *cui bono?* The answer comes, for the purse of the operator,—certainly not for his legitimate reputation.

*SLOW RESPIRATION IN PHTHISIS.<sup>1</sup>*

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As far as I know, this subject has not been touched upon by any writer on phthisis before, and I wonder why it has escaped the notice of all those men who have had sanatoria in their charge, except that one has to get up rather early in the morning, as almost the only time when one can study this phenomenon is between 6 A.M. and 9 A.M., immediately after waking and before coughing has commenced. In looking through the books written on consumption which are within my reach, I find only very few remarks on the respiration, and all of these point more in the opposite direction,—i.e., that the respiration is quicker and shallower. The only author that treats respiration at some length is Professor Kühle, in Ziemssen's "Hand-Book of Physics;" Dr. Tanner, Dr. Bristowe, and Dr. Watson mention it also, but only in a sentence or two. Kühle (translated) says that dyspnœa and the number of respirations reach, in the ordinary course of the disease, no high degree, although the lungs are even seriously affected. If the number of respirations is affected by the irritation of the endings of the pneumogastries in the lungs, and if the dyspnœa is dependent on the quantity of lung tissue involved by the disease, which is the teaching of Traube, we should expect much greater differences in both. It must be the slowness of the development of the disease which allows the body to adjust itself to the new circumstances.

If we observe a case of pleurisy, where the effusion takes place very gradually, we find that the frequency of respiration is not materially altered, but where a pneumothorax is quickly developed, then the breathing is very hurried. This opportunity of getting accustomed to the new state of affairs presented to the body of the consumptive patient is supported also by the greater amount of rest and quietude he lives in, and so we see that, in lying down or in bed, his respirations are not considerably changed, even in the last stages of disease; but as soon as he gets up and walks about they become suddenly quickened. The outbreak of fresh tubercles in the lungs produces an irritation of the ends of the pneumogastries, and the respiration is always quickened. Watson says: "You may wonder that a disorder, in which so large a portion of the breathing apparatus is so often effectually spoiled, should be attended by so little distress in respiration; but your surprise will be diminished if you consider the insufficient manner in which consumptive patients are nourished in consequence of abdominal disease, and the extent to which their blood is wasted by diarrhœa and by perspiration. The mass of blood is thus kept down to that measure which,

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<sup>1</sup> Read before the American Climatological Association, Richfield Springs, New York, June 24, 1892.



passing through the still pervious portions of the lungs, is capable of being arterialized without any great deviation from the ordinary mode and frequency of breathing. The presence, however, of marked pyrexia is always accompanied by frequency of respiration."

Bristowe says: "The frequency of respiration is diminished in syncope and collapse, and various affections implicating the nervous centres, and occasionally also in cases of dyspnœa dependent on the presence of some mechanical obstacle to the entrance and escape of the air."

These are pretty nearly all the remarks I could find, but I do not doubt that others exist. An article which I read some years ago in the *Lancet*, treating on quick respiration, if I remember rightly, described three cases where the respirations were between 50 and 70 to the minute, or  $1\frac{1}{2}$  pulses to one respiration, while, as a rule, 4 to 5 pulses are counted during one respiration. These cases are nearly always found in highly nervous patients, and frequently hysteria plays a great part in them; it is essential to have the respiration counted while the patient is asleep, which a nurse or a servant, if intelligent enough, can do. I, myself, had the opportunity of watching one of these cases, which I shall briefly mention.

Mrs. A. was under treatment from August 27, 1880, to July 17, 1885. The lowest number of respirations I ever counted in her case was once 42 and once 44 in the minute; the usual respiration was 60, and once I counted 82 and 84 in the minute. When Mrs. A. was fast asleep, the respiration varied between 24 and 36 in the minute. The pulse was fairly well in accordance with the respiration; when the respiration was 60 the pulse was between 80 and 86; when the respiration was 42, the pulse was 72; when the respiration was 80 or above, the pulse was 100 or thereabouts. She was a highly nervous lady, but by far too matter-of-fact a woman to be called hysterical, and I never saw any hysterical outbreaks in these five years.

I only give you this one case as a counterpoise to the slow respiration, although the cases with quick respiration are very numerous, but exclusively in the female sex. Under the expression "quick respiration" I understand a usual rate of 25 respirations in the minute and upward; under "slow respiration," a usual rate of 10 respirations in the minute and downward; therefore, the normal respiration would lie between 10 and 25 respirations, which you will observe is a very wide margin, as physiology put the limit between 12 and 18.

In my statistics I find forty-four cases, out of eight hundred and eighty-four minutely observed, where the respiration at some time or other ran down *below* 10 in the minute, which I need only mention; so about five per cent. of all the cases show this peculiar feature in high altitude, and here I will also state that only four of these cases were ladies among the forty-four. I have tabulated the age, sex, date of observation, respiration, pulse, circumference around the chest, and weight, and will give a short history of each case. In the second part I shall try, as far as possible, to give an explanation of the facts.

## STATISTICAL TABLES.

Number.	Initials.	Male.	Female.	Age.	Date of observation.	Number of respirations in the first half of the month.	Number of respirations in the second half of the same month.	Pulse in the first half of the month.	Pulse in the second half of the same month.	Circumference around the chest; deepest inspiration; lowest expiration.	Weight in half-kilogrammes.	Remarks.
1	P. A.	1	...	36	Nov. 1889	18	16	80	76	.....	120	Case of frequent hemorrhage.
					Apl. 1890	16	18	80	80	.....	115 $\frac{3}{4}$	
					June, 1890	10	10	72	68	.....	120 $\frac{1}{2}$	
					Oct. 1890	12	14	72	84	.....	121	Koch's treatment.
					Mar. 1891	12	8	88	92	.....	113	
2	Lt. A.	1	...	30	June, 1887	12	11	92	76	88.85	128 $\frac{1}{2}$	Spent previous winter in Davos.
					Aug. 1887	10	8	80	72	.....	130	
					Nov. 1887	8	8	76	72	90.86	131 $\frac{1}{2}$	
					Jan. 1888	7	...	80	.....	.....	130	Died from sudden hemorrhage.
3	Arch.	1	...	32	Nov. 1883	18	.....	76	.....	.....	.....	Case of incipient phthisis with tendency to hemorrhage. Quite well, remained well and working ever since.
					Dec. 1883	.....	12	.....	68	.....	.....	
					Mar. 1884	10	.....	72	.....	.....	.....	
					Apl. 1884	9	.....	72	.....	90.84	126	
4	A. A.	1	...	43	Sept. 1889	12	.....	96	.....	94.90	139	Very ill but kept his ground marvellously well. Asthma.
					Oct. 1889	10	12	84	72	.....	140	
					Feb. 1890	16	10	100	76	.....	130	
				44	Nov. 1890	10	16	80	92	96.91	153	Emphysema, tuberculosis; getting better.
					Jan. 1891	10	10	76	72	.....	147 $\frac{1}{2}$	Improving.
					Feb. 1891	10	9	64	70	98.93 $\frac{1}{2}$	147 $\frac{1}{2}$	
5	C. A.	1	...	21	Oct. 1879	24	.....	76	.....	86.	120	Pleuro-pneumonia and tuberculosis in sequence; went to Scotland. Came back again worse.
				24	Jan. 1880	16	16	84	72	91.	128	
					Nov. 1882	15	.....	80	.....	88.82	123	The patient spent the winter in Davos, the summer in wool-mills in Glasgow; he got much better and did work for many years at home, and died afterwards in an asylum.
					Feb. 1883	16	16	82	80	.....	132	
				26	Jan. 1884	13	14	76	92	96 $\frac{1}{2}$ .89	132	Hopeful case, but as soon as he got better he had to go in for studies and examinations in London, and he came back worse each time.
					Nov. 1884	10	10	72	72	95.88	127	
					Jan. 1885	9	10	80	72	.....	129	
					Apl. 1885	9	9	72	72	95.86	132	
6	Ave.	1	...	20	July, 1880	18	.....	88	.....	82.	110	
					Sept. 1880	14	.....	80	.....	84.	118	
				22	July, 1882	14	13	92	72	84.77 $\frac{1}{2}$	109	
					Oct. 1882	13	9	80	68	88 $\frac{1}{2}$ .80	116 $\frac{1}{2}$	
					Nov. 1882	10	9	76	68	.....	119	
					Mar. 1883	8	9	72	78	89 $\frac{1}{2}$ .82	120	
					Apl. 1883	8	.....	.....	.....	.....	.....	
				23	Feb. 1884	16	12	104	100	83.86	105	Was sent to the Riviera, but without success. Died a year later in E.
					Nov. 1884	12	13	104	120	83.76	101 $\frac{1}{2}$	
7	All.	1	...	16	June, 1884	12	10	60	68	74.59	76	Tuberculosis after pneumonia in predisposed individual; did well, remained so several years.
					Dec. 1884	10	10	68	68	77 $\frac{1}{2}$ .71	83	
					Mar. 1885	10	9	64	68	77.72	84	
8	P. B.	1	...	29	Nov. 1880	16	12	100	96	99.	165	Hemorrhagic phthisis in a strong man, whenever he left high altitude bleeding was the consequence.
					Mar. 1881	12	.....	72	.....	99.93	158	
				31	Mar. 1882	11	10	80	80	.....	155	
					Feb. 1883	7	7	88	80	.....	162	
					Mar. 1883	8	8	82	80	.....	162	
				33	Feb. 1884	8	8	84	80	.....	162	
					July, 1884	7	7	72	76	.....	163	In June, 1886, had hemorrhage in Ragaz, came back with pneumonia and got over it.
					Feb. 1885	8	5	76	76	.....	162	When convalescent caught cold in W. C., had relapse and died.
					Jan. 1886	2	.....	90	.....	.....	160	
					Apl. 1886	10	.....	76	.....	.....	159	
9	Bea.	1	...	27	Nov. 1885	18	15	112	92	83.80 $\frac{1}{2}$	113 $\frac{1}{2}$	Double-sided pneumonia, never bacilli, unknown origin; no lues to be detected and opportunity not given.
					Feb. 1886	16	12	88	64	85 $\frac{1}{2}$ .81 $\frac{1}{2}$	117	
					Oct. 1886	14	12	76	76	.....	116 $\frac{3}{4}$	
					Dec. 1886	12	12	68	60	82.80	117 $\frac{1}{2}$	
					Feb. 1887	8	8	60	68	.....	119	
					Apl. 1887	10	9	96	88	82 $\frac{1}{2}$ .78 $\frac{1}{4}$	114 $\frac{1}{2}$	Run down with private affairs.
				29	Aug. 1887	7	8	64	61	88.82	120	Was in Pontresina all summer.
10	A. B.	1	...	43	Nov. 1879	22	20	56	56	86.82	115	Hemorrhagic phthisis. Winter, Davos; summer, Scotland. Left lung pretty nearly one large cavity; some lung-tissue left only at the base.
					Mar. 1880	14	.....	64	.....	88.83	120	
				45	Nov. 1881	15	16	64	60	86.82	111 $\frac{1}{2}$	
					Apl. 1882	14	12	60	60	86.82	113 $\frac{2}{5}$	
				48	Nov. 1884	12	12	64	64	86 $\frac{1}{2}$ .83 $\frac{1}{2}$	112	
				49	Nov. 1885	15	14	60	60	.....	114	
					Feb. 1886	14	14	64	60	.....	115	





STATISTICAL TABLES.—Continued.

Number.	Initials.	Male.	Female.	Age.	Date of observation.	Number of respirations in the first half of the month.	Number of respirations in the second half of the same month.	Pulse in the first half of the month.	Pulse in the second half of the same month.	Circumference around the chest; deepest inspiration; lowest expiration.	Weight in half-kilogrammes.	Remarks.
26	N. K.	...	1	22	Feb. 1881	8	7	76	80	93 .88	138	Got quite well, and does duty ever since in Scotland. One-sided disseminated tuberculosis.
					Apl. 1881	8	6	88	80	94 .89	136	
					Oct. 1886	18	18	80	80	77½.72½	101½	
					Jan. 1887	7	7	86	72	77½.71½	99	
					Oct. 1887	6	5	76	76	77 .71	93	
27	Kel.	1	...	20	Feb. 1888	8	8	84	72	76½.70	90	No stamina. Spent one summer in Pontresina. Came back from St. Moritz with a fresh pneumonia, and could not recover. Hemorrhagic phthisis. Was keeping his ground very nicely for a long time, but still actual improvement was very slight.
					Oct. 1888	10	10	80	76	75 .69½	88	
					Dec. 1884	24	13	80	76	89 .82	124½	
					Mar. 1885	12	12	64	68	90½.82½	138½	
					Oct. 1885	16	18	64	68	89½.84	126½	
28	Lock.	1	...	23	Dec. 1885	12	8	64	72	91½.85	135½	Left for Meran. Tuberculosis with dyspepsia. Died from inanition. Double-sided tuberculosis.
					Sept. 1886	9	10	68	70	90½.83	132	
					Apl. 1887	12	10	72	68	90 .84	128½	
					Aug. 1887	10	11	72	76	.....	120	
					Feb. 1888	9	11	76	72	.....	126⅔	
				25	Oct. 1888	14	14	72	80	91 .84	119	
					Mar. 1889	13	12	68	76	90 .82	118	
					July, 1881	12	9	92	92	.....	110	
					Sept. 1881	8	.....	87	.....	.....	114	
					Oct. 1881	12	.....	112	.....	.....	.....	
29	D. L.	1	...	36	July, 1883	22	14	120	92	84 .80	108	Albuminuria set in, and sent to Florence. Hemorrhagic case with double-sided tuberculosis. Improved, and went to Scotland for summer. Improved nicely for a long time, but hemorrhages occasionally occurred.
					Sept. 1883	11	11	96	96	87 .83	114	
					Nov. 1883	9	10	92	92	87 .83	114	
					Jan. 1884	8	.....	96	.....	.....	115	
					Oct. 1881	16	16	68	64	82 .76	112	
30	Lind.	1	...	19½	Jan. 1882	10	10	72	72	86 .80	109	Hemorrhagic case with double-sided tuberculosis. Improved, and went to Scotland for summer. Improved nicely for a long time, but hemorrhages occasionally occurred.
					Oct. 1882	11	9	88	80	81½.78	100	
					Jan. 1883	8	8	100	92	85 .81	102	
					Sept. 1883	8	9	88	84	86 .82	114	
					Dec. 1883	6	8	88	72	86 .80½	110	
31	Lin.	1	...	22	Mar. 1884	5	5	86	84	.....	110	Went home to stay. Double-sided case. Stayed at home for nearly two years and got married. Hemorrhage in Ragaz, and died.
					May, 1884	5	6	84	90	87 .81	110	
					Dec. 1886	12	16	72	72	.....	113	
					Apl. 1887	7	9	64	56	88 .81½	112⅔	
					Oct. 1887	9	8	70	64	88 .82	113	
32	Mil.	1	...	30	Feb. 1888	6	10	60	88	86 .78	108⅔	Serious case from beginning; double-sided, and digestion and assimilation very poor. I had the opportunity of seeing him frequently when asleep. Pulse, 72-80; respiration, 4-6. Died from utter prostration. Hemorrhagic case, without any recurrence in Davos.
					Dec. 1889	10	.....	60	.....	.....	104	
					Apl. 1890	9	.....	70	.....	.....	103½	
					Sept. 1883	14	12	80	88	95 .89	.....	
					Dec. 1883	8	8	76	74	90½.85	138	
33	Dr. P.	1	...	24	Jan. 1884	7	5	76	80	90½.85	137	In June, 1885, went home and had six hemorrhages, and came back, but could not rally. Incipient phthisis after pneumonia. Got well and remained so.
					Apl. 1884	5	6	78	74	91½.86	135	
					Jan. 1884	5	4½	76	80	.....	133½	
					Sept. 1884	5	7	78	80	90 .84	129	
					Nov. 1884	9	5	78	84	90 .84	.....	
34	Rod.	1	...	27	Sept. 1883	.....	14	.....	84	90½.85	113	Serious case of double-sided affection. Got much better.
					Dec. 1883	11	10	72	76	91 .85	114	
					Apl. 1884	10	12	100	80	91½.86½	115	
					Oct. 1884	10	7	62	56	92 .86½	115	
					Dec. 1884	6	11	72	68	92 .86	113	
35	Rea.	1	...	34	Mar. 1885	8	12	64	72	92 .86	114	Went to Colorado, and in Colorado respirations as noted, February, 1892.
					Oct. 1884	10	7	62	56	92 .86½	115	
					Aug. 1885	16	16	68	72	85 .80½	114	
					Apl. 1886	12	12	64	68	91½.86	118	
					Nov. 1886	12	8	56	62	.....	120½	
36	36	1	...	34	Jan. 1887	8	8	64	64	.....	122	Went to Colorado, and in Colorado respirations as noted, February, 1892.
					July, 1887	8	8	56	64	88 .82	122½	
					Sept. 1889	10	.....	64	.....	.....	120½	
					Apl. 1890	10	.....	68	.....	90½.82	119	
					Feb. 1892	8½	9½	52	60	88 .80	.....	



## STATISTICAL TABLES.—Concluded.

Number.	Initials.	Male.	Female.	Age.	Date of observation.	Number of respirations in the first half of the month.	Number of respirations in the second half of the same month.	Pulse in the first half of the month.	Pulse in the second half of the same month.	Circumference around the chest; deepest inspiration; lowest expiration.	Weight in half-kilogrammes.	Remarks.
36	Ran.	1	...	23	Sept. 1879	24	.....	96	.....	86 .	117	Serious case from beginning; double-sided affection and impaired digestion and assimilation.
					Dec. 1879	18	16	80	76	88 .	120	
					Mar. 1880	12	.....	78	.....	.....	119½	
					July, 1880	12	.....	72	.....	86½ .	110½	Kept his ground very well; went back to England; got married, and died a year later.
					Nov. 1880	9	.....	76	.....	89 .	119	
					Apl. 1881	8	.....	80	.....	88 .	119	
37	Lim.	1	...	28	Sept. 1884	19	12	100	76	90½.86	121	Incipient phthisis bacilli. Got well, and remained well until now.
					Nov. 1884	10	7	72	72	.....	126	
					Dec. 1884	8	6	68	68	.....	127	
38	Sha.	...	1	27	Feb. 1885	7	6	68	76	91 .84½	127½	Incipient phthisis tubercular. Got very well, as well as ever. Got married; went to India; had a child, and came back to Europe to die.
					Nov. 1885	22	16	76	72	80 .73	110	
					Apl. 1886	12	10	76	72	79½.72	112	
					Sept. 1886	12	12	68	64	82 .75	112	
					Jan. 1887	9	10	72	80	.....	107	
39	Tu.	1	...	28	Nov. 1883	12	13	60	60	94 .88	136½	Bad form of phthisis, very progressive. Got a little better, and went to California to relations. Died in 1887.
					Mar. 1884	10	8	60	56	93 .85½	140	
					Oct. 1884	12	8	60	64	91 .85	137	
40	Tho.	1	...	42	Jan. 1885	12	10	68	60	91½.85	139	One-sided affection; made a very good cure; saw him once later, and cure was established.
					Oct. 1887	10	8	64	68	94½.87½	154	
					Jan. 1888	6	5	60	60	.....	156	
41	G. W.	1	...	30	Feb. 1888	7	6	60	52	98½.87	155	Was very ill when he arrived; pronounced double-sided tubercular pneumonia. Did well till he went to England, and then he lost considerably in weight, and never was so well afterwards. Summer, 1885.
					Apl. 1888	7	8	56	60	94 .84	155	
					Oct. 1883	12	10	12	68	93 .84½	137	
					Dec. 1883	8	7	72	76	93 .84	140	
					Apl. 1884	6	7	60	68	94½.86	141	
					Oct. 1884	10	8	88	60	92½.83	137	
					Apl. 1885	8	8	80	72	92½.83	137	
					Sept. 1885	8	8	92	76	90 .82½	126	
				33	Mar. 1886	9	10	72	76	92 .84	133	
					July, 1886	7	5	76	72	92½.83½	128	
					Nov. 1886	10	10	64	72	.....	126	
					Apl. 1887	10	12	84	84	.....	125½	
					Oct. 1887	10	8	80	68	90 .81½	120	
					Apl. 1888	8	8	84	76	.....	122	
					Aug. 1888	10	10	64	76	92 .82	122	
				36	Apl. 1889	10	13	76	82	.....	122	
42	Rd.W.	1	...	34	Aug. 1883	32	28	120	120	.....	113	Case of tubercular pleuritis, with adhesions all over left lung, and strong contraction. Got very well, and went home to his duties; got married. Saw him in 1891, and he had kept well.
					Oct. 1883	30	30	112	112	84 .81½	119	
					Jan. 1884	18	16	108	112	.....	119	
					Feb. 1884	13	14	112	100	81 .78½	117½	
					Apl. 1884	12	10	108	100	82 .79	118½	
43	Wor.	1	...	39	Oct. 1890	15	13	60	64	92 .88	135	Incipient phthisis in a healthy organism.
					Dec. 1890	9	10	60	56	91½.84½	135½	
					Apl. 1891	10	8	60	60	.....	136	
44	Wr.	1	...	25	Nov. 1882	14	12	88	96	90½.86	141	Sharp attack in left apex, but localized.
					Jan. 1883	10	8	68	72	93 .87	140	
					Apl. 1883	10	10	76	80	92½.86½	149	

Before anything else, I have to say that the measurements around the chest are given in centimetres, and the weight in half-kilogrammes. If you wish to transform the weight into American or English measure, you add ten per cent.; for instance, 114 half-kilogrammes =  $114 + 11.4 = 125.4$  American pounds, or eight stone thirteen and a half pounds English weight. I have chosen the half-kilogramme because it is so easily reduced to the different weights.

The temperature of these patients I have not tabulated, and I have not taken it regularly in the early morning, because, whenever I took it,

it was normal or subnormal, but not so low that the temperature in itself would be an indication for diminished oxidation from pathological reasons. I do not think that I go wrong in saying that in all of these cases the temperature ranged between  $96.5^{\circ}$  F. and  $98.5^{\circ}$  F. The influence of the oxidation in the animal body is naturally of the greatest importance, and physiology speaks extensively about it.

Of these forty-four cases there were seven bad ones, where no hope could be entertained of recovery, but please keep in mind they were not in a moribund condition; all of them were still able to take their walks and to go down stairs to their regular meals. As soon as an active disease disturbed the normal condition of the consumptive patient, I did not use these observations in these statistics. Of these same forty-four cases, I had eight which were likely to live some years longer if they remained in the mountains, but whose ultimate recovery could not be looked for, and twenty-four cases with good prognosis, of which the greater number are still alive and doing work; and, lastly, five cases which were once good but got worse through some unknown reason.

You know that in a former paper, in speaking on the influence of high altitude, I laid great stress on the fact of expansion of the chest, of lessening of the pulse and of respiration, and went even as far as to say that by the changes these three components undergo the prognosis of a given case will be altered. Here you have forty-four cases in which the diminution of the number of the respirations was so marked, in fact went down so low, that physiology, pathology, and symptomatology do not yet speak of it.

Kühle says that the respiration is not materially altered. Watson says that the patients are so reduced by bad digestion and poor assimilation, and the quantity of blood is so diminished, that the arterialization can still go on without any great deviation from the ordinary mode or frequency of respiration.

Bristowe, in speaking of the frequency of respiration, had quite different cases in his mind; he writes of syncope and collapse, and various complications implicating the nervous centres, and also of mechanical obstacles which prevent free entrance and exit of the air through the larynx. The cases I describe here are of quite a different nature. If we look at Case No. 8, a man of strong physique, weighing between one hundred and sixty-eight and one hundred and eighty pounds, and we see that his respirations in high altitude from March, 1882, until April, 1886, were never above 10 in the minute, and went down to 2 in the minute on the 6th of January, 1886, or, to speak more pointedly, he had just 10 respirations in five minutes, then, I think, we must try to get some explanation from physiology or pathology. I looked about and investigated wherever I thought I might be able to find an explanation, but in vain; I could not find anything that would throw light upon this phenomenon. We have in the physiological hand-books different facts mentioned which produce slow and deep respirations, and even apnoea, but the conditions under which these



alterations occur cannot be identified in the patients that show the same symptoms.

So physiology tells a great deal about its experiments on animals by vagotomy, section of the medulla vertebralis just below the medulla oblongata, etc.; but how many organs are materially affected by this one cut, vagotomy? The whole system of splanchnology is set out of gear by it, and certainly one can only study the effect of this cut *in toto*, and it is not proper to make any definite conclusions upon the action of one organ alone.

The question of blood-gases is also far from being ultimately solved, and the nervous influence on respiration (reflex action) is even less known. It is in so far natural, as nobody ever has called attention to this fact and so the physiologists have not had the stimulus to look into it, but I hope the evidence will soon be strong enough to induce some one to make minute observations and studies in this direction. Particularly the physicians to sanatoria have ample opportunity to collect the necessary material, and I think it would stimulate every one to make some observations of this kind, as the subject is a new one.

At the present moment it would be useless to try to find out for every case the special reason for the slow respiration. I only wish just to point out the ways in which one can occasionally make a diagnosis, the most important diagnostic help being the pulse and the cyanosis or absence of cyanosis. If the pulse is quiet and the color of the mucous membrane red, we can be sure that the blood is well supplied with oxygen and the respiration regulated according to the want of oxygen. This apnœa in such a large number of patients is the result of the different climatic factors, as particularly the expansion of the chest, greater chemical affinity of the oxygen in high altitudes, and increase of the hæmoglobin in the blood.

In some cases the slow respiration is produced in a different way, and we have quite a different picture before us. The fingers show the shape of the drum-stick, and are cold and blue, the lips are bluish, and the cutaneous veins are filled, prominent, and translucent; the circulation in the veins is very poor and the *vis a tergo* of the heart feeble, and frequently the right ventricle dilated. The patient is very drowsy and awakes slowly, one sees almost that in the venous blood the carbonic acid is increased, and this produces a sort of chronic narcosis, during which only powerful irritation is able to make an impression upon the nerve-endings of the pneumogastric, and to convey it to the respiratory centre; the pulse is always very feeble, mostly above 100, but sometimes also low. If these patients only raise themselves in bed to be examined, the respiration runs up very quickly, and walking, as a rule, is distressing to them.

The third group which must be mentioned here is that of brain-disease, as they are sometimes seen in the last stages of consumption. I did not put any of these cases into my statistics, as they have been long known, and I shall not dwell upon them. Intercranial pressure will often act as a cause of altered respiration.

## NOTE ON THE MORPHOLOGY OF THE HÆMATOZOON OF MALARIA.

BY ALLEN J. SMITH, M.D.,

Professor of Pathology in the Medical Department of the University of Texas, Galveston, Texas.

THE regular alternation during the first days of observation between the crescentic forms of the hæmatozoon of malaria and the large spherical and ovoid forms in the following case has seemed worthy of record, aside from its mere statistical value.

The patient, F. E., a white man, of thirty-two years of age, born in Virginia, had been in Texas for two years, and, until seven weeks prior to his admission to Sealy Hospital, had never in this time been off Galveston Island, where he had been steadily employed as a printer. He had never had malaria in his life. In the latter part of September, 1891, he left the island to work upon railroad repairs in the Navasota bottoms, a region well known in the State as a malarial district. Five weeks after he began work in this locality he was rather suddenly taken ill, being almost overcome by a sense of exhaustion while at work. There had preceded, for several days, slight and indefinable symptoms, which the patient disregarded, as too trifling to notice. From the time of the invasion of the sickness until he was admitted to the hospital, on the 17th of November, 1891, he experienced no distinct chills, and observed no tendency towards periodicity in the symptoms. At irregular times he felt slight "creepy" sensations which doubtless represented the usual rigors, but these apparently bore no regular and definite relation to the other manifestations of the disease. Upon admission, the patient was decidedly cachectic, with a peculiar yellowish tinge added by a slight icterus. He exhibited a temperature of 102° F., and complained of intense hemicrania of the right side. The spleen was enlarged; the urine red, clear, and free from albumin; the bowels somewhat loose until date of admission; the appetite fair.

The blood was at once examined for the hæmatozoa of malaria, and large numbers were found by Mr. Gammon, the resident medical student in charge of the case. These were without exception of the crescentic shape. The following day, at noon, the writer examined the blood, and found a great many parasitic bodies, but, curiously, none of the crescentic shape: all were of a spherical or oval form, a number exhibiting the rapid movements of the flagellate variety. On the third day (November 19), at the same hour, many hæmatozoa were present, but all were typical crescents, none spherical. On the fourth day (November 20), at the same hour, there were again observed many bodies, all but one of which were spherical or ovoid. At the same hour on the succeeding day (November 21), all the bodies, which as yet continued to be found in considerable numbers, were found to be crescents. At the end of the next twenty-four hours, the hæmatozoa present



were no longer uniform in their shapes, being in part spherical or ovoid bodies of varying size, and in part crescents of an irregular type in the matter of size and shape. For the next few days, until the patient's departure from the wards of the hospital, on November 25, with all active symptoms absent, only crescents could be observed, but these persisted in no inconsiderable numbers to the end. The treatment pursued in the case was that which is usually found sufficient in malaria in this locality, the administration of quinine, which in this instance was given in daily quantities of twenty grains by the mouth from the day following his admission to the wards.

The transformation of the crescentic bodies into oval and into spherical forms is by no means an unobserved phenomenon in the life-history of the malarial parasite; and, on the contrary, the writer has followed in several instances changes in an individual body from the spherical to the oval and from the oval to crescent,—although in none of the studies was an absolutely regular crescent the final result, probably because improperly arranged and cold slides were employed. Laveran, in his monologue upon the subject of the malarial hæmatozoon (*Paludisme et son Hæmatozoon*, Paris, 1890), mentions the transformation of the crescent into the spindle-shaped body, into the oval, and finally into the spherical form, and evidently regards the first of these as an intermediate stage in the development of the parasite. The daily alternation of the forms observed in the above case, and the persistence of the crescents as the final and constant representative of the organism under the influence of quinine, the other forms disappearing under the same circumstances, is strongly suggestive of the truth of this observation. On the contrary, however, it should be held in mind that there exists a possibility, but by no means a probability, that these forms are equally interchangeable; the above noted observations of the change from spheres into irregularly-shaped crescents would indicate that this interchange may at least occasionally occur. The writer is not disposed, however, to regard this as the usual mode of procedure, but rather as a sort of retrogression. An inference which does seem warrantable from the noted alternations in the above case is that there probably exists a definite limit to the crescentic stage of the parasite; that this stage is about twenty-four hours in duration, and that the period of transformation from the crescentic into the oval, and later into the spherical variety, probably occupies but a short time. From the following scheme, it may be inferred that this stage of transformation in the above case occurred at night or early morning, the observations grouping themselves thus:

November 17, 4 P.M.—*Crescents*.

“ 18, noon.—*Spheres*.

“ 19, “ —*Crescents*.

“ 19, 8 P.M.— “

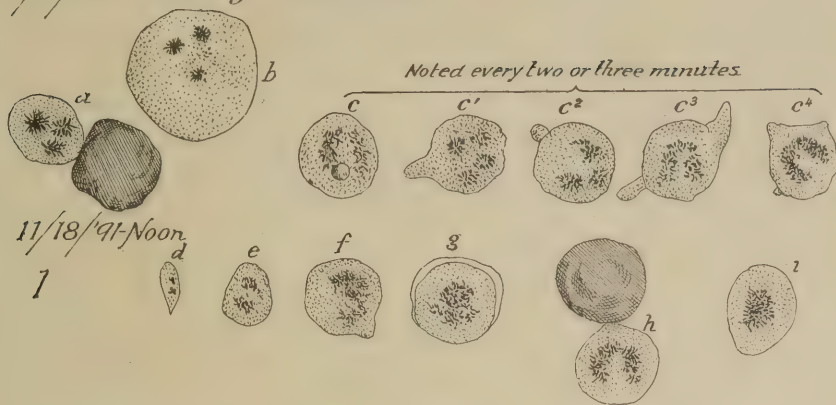
“ 20, noon.—*Spheres*.

“ 21, 10 A.M.—*Crescents*.

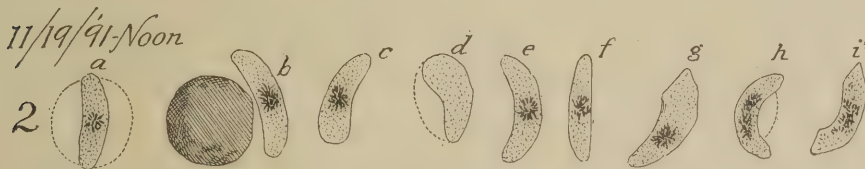
“ 22, noon.—*Mixed*.

Daily thereafter.—*Crescents*.

11/17/91 Evening - Crescents



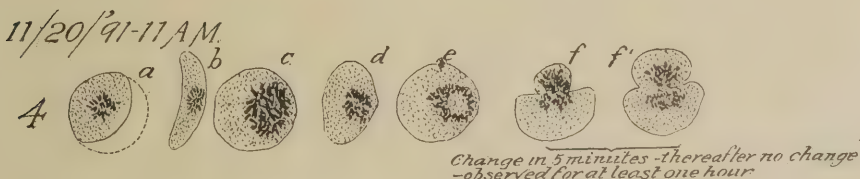
1.—a, spherical hæmatozoon attached to red cell; b, white blood-cell containing pigment; c, showing slight, amœbiform movements in a hæmatozoon during fifteen minutes' observation, no further change thereafter; d, small, irregular body, probably badly-shaped crescent; e, f, i, spherical hæmatozoon; g, showing double contour on spherical hæmatozoon; h, showing attachment of hæmatozoon to a red blood-cell.



2.—a, crescent apparently lying over or within remains of a red corpuscle; b, c, d, e, f, g, h, i, various-shaped crescents.



3.—a, b, c, e, f, crescents lying near or penetrating corpuscles; d, crescent with horns joined by fine line, perhaps wall of degenerated red cell.



5-11/21/91 Noon Crescents

4, 5.—a, sphere apparently within or attached to remains of red cell; f, f', showing changes, as of fission, occurring within five minutes of observation; no further changes noted after an hour's watching.



7-11/23, 24, 25/91 - Crescents

Some of the forms noted from day to day.

6, 7.—Various irregular bodies, crescents and spheres.





*THE PNEUMATIC CABINET IN THE TREATMENT OF  
PULMONARY PHTHISIS.<sup>1</sup>*

BY C. E. QUIMBY, A.M., M.D.,

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IN 1885 there was presented to the medical profession, in an article entitled "Antiseptic Treatment of Pulmonary Disease by Means of Pneumatic Differentiation," a new instrument for the treatment of pulmonary phthisis. A little later the instrument was demonstrated before this Association at its annual meeting in New York. For a time it excited considerable interest, and received some discussion in the medical press and before this Association. A few years, however, sufficed to obliterate its memory from the minds of all, save a very few, until in 1890 it seemed to have passed into oblivion, when the last dozen were sold for old iron at ten dollars apiece. Some explanation would therefore seem to be due you for my apparent presumption in again asking your attention to this discarded instrument. I shall dare to hope that it may be sufficient excuse when I say that after six years' constant use I regard the pneumatic cabinet as, next to climate, our most valuable means for the control of phthisis, and as, for certain indications, more valuable even than climate. In justice to the cabinet, however, I desire to offer some explanation of its failure to obtain general recognition. The failure of the cabinet to come into general use was, in my opinion, due, first, to an extravagant insistence upon the value of a method of treatment which was entirely distinct from the cabinet, and, in the opinion of many, not even accomplished by the cabinet, as was claimed.

The title of the article referred to indicates that topical medication was the objective point, and it closes with these words, "Phthisis has been cured by the topical application of appropriate remedies." Such claims after so brief an experience were sufficient to make conservative men more than doubtful, but, still, worse, they led those who tested the cabinet as directed by the author to follow almost solely one method of application. Within less than two years I have been told by patients, as well as the resident physician, that all patients at the Adirondack Sanitarium who received the cabinet were treated exactly alike by a single method of application, and its administration was intrusted to a layman. The most cursory examination of the literature of the subject will show that almost without exception

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<sup>1</sup> Read before the American Climatological Association, Richfield Springs, New York, June 24, 1892.



the single motion of negative differentiation was regarded as the essential feature of the cabinet.

Again, the demonstration of even this topical medication, given by Mr. Ketchum, was based on such an obvious error of physical statement, and his reception of all criticism so patronizing in its self-assurance, that those who saw other value in the instrument were prevented from appearing in its defence. Some substantiation of such plain contradiction of Mr. Ketchum's claims may justly be demanded, although they received complete refutation in Dr. Platt's paper, read before this Association in 1886.

The entire demonstration of condensation of vapors from saturated air upon the pulmonary surfaces was based upon the assumption that, given a patient in the cabinet breathing under negative differentiation in which expiration is accomplished by forcible voluntary effort, the pressure upon the pulmonary surfaces is increased during expiration by the amount of rarefaction expressed in units of atmospheric pressure. The fallacy of this assumption is made plain by the fundamental law of mechanics, that two forces acting in opposition are in equilibrium, or their difference represented by momentum, and that the compression exerted at the point of opposition is determined by the weaker force. Now, in expiration under negative differentiation the opposing forces are, first, weight of the atmospheric column; second, friction; third, inertia, and fourth, the physiological action of the glottis. Of these, the first is the same as when the patient is not in the cabinet. The second and third are variable factors, depending upon the suddenness and rapidity of expiration, and thus stand in direct ratio to the expiratory forces. But under negative differentiation one factor of this force has been diminished. Inertia and friction then must be less than under a similar forcible expiration outside of the cabinet. Still further, closure of the glottis is a reflex act, varying inversely as the expiratory effort, and would thus tend to be less rather than greater. Three elements of the force opposing expiration are thus diminished by negative differentiation, and as alveolar compression cannot be greater than could be developed by this force, alveolar condensation under the given conditions must be slightly less than can be secured by the unaided patient outside the cabinet.

While thus repudiating the original claims, I am glad to admit that with the artificial glottis and forced respiration, alveolar pressure may be greatly increased. I only regret that with the introduction of a new measure, so far as I am aware, no public acknowledgment of the former error has been made.

The failure of the cabinet was due, secondly, to the nature of phthisis and the impatience of human nature. The cabinet is not a surgeon's knife, and phthisis cannot be cured in a day. Patients always demand visible results from mechanical treatment. With little comprehension of the possibilities in his disease, the sufferer is sure to grow restless unless speedily relieved, until the never-failing friendly advice leads him to seek relief

elsewhere. Nor is the patient alone affected. The most fervid enthusiasm cannot distil the monotony from daily rounds of pumping, and the physician whose practice is based on immediate results instead of knowledge is easily overwhelmed with doubt when results are delayed. I claim some credit for patience, at least, as for five years I have stood nearly two hours a day at the handle of this instrument. With such a prospect few physicians have attempted its use, and still less persisted, while hardly twenty men in the country have gained definite ideas of what the cabinet does. I hasten to beg no one to suppose I consider this the result of inability on the part of those who have used the cabinet to understand it. It is purely the result of routine following others' directions, and failure to study it from the physical and mechanical stand-point. It has, however, led to illogical criticism, which appears to the uninformed to condemn the cabinet, while its failure to include all the facts forces one to be dogmatic rather than argumentative in opposition. In making the foregoing statements, I disclaim all personal feeling and invite the sharpest criticism of the demonstration of my own position, since my sole desire is to know the truth in this matter. To avoid repeated reference to authorities, I request at the outset correction of any statement of fact that cannot be verified by reference to standard authority.

Twenty odd years ago the eminent mathematician, Professor Benjamin Peirce, of Harvard, wrote this definition as the first sentence in a work which he described as the most satisfactory mental effort of his life: "Mathematics is the science which draws necessary conclusions." Mathematical is definitive of certainty. Conclusions are the product of mental comparison of related facts. Mental processes, then, may be mathematical, and the knowledge they afford may be as certain as any obtained through the senses. The history of medicine shows an unfortunate preponderance of empiricism, and a distressing dearth of mathematically deduced principles. We follow too blindly the *post hoc*, because it is superficial and tangible. We distrust the *propter hoc*, and brand it bastard, apparently because we *do* know the paternity of such mental conception. We have a more practical faith in our eyes than in our brains, and are apt to dub that man theorist who offers a logical demonstration as a basis for action. It is upon this basis, however, that I propose to discuss this subject. What, then, can we *know* of the relations of the pneumatic cabinet to pulmonary consumption? This implies the consideration of three questions. First, what are the physical and physiological facts of pulmonary phthisis and the possible methods of its cure? The answer constitutes the first postulate of our syllogism. Second, what is the physics of the pneumatic cabinet? This affords a second postulate. Third, what are the necessary conclusions from the relations existing between these two?

No more flagrant cause of error, misunderstanding, and confusion exists than the failure to appreciate that tuberculosis and phthisis are distinct and different conditions. Nor does our acceptance of tuberculosis as the *sine*



*qua non* of phthisis render the distinction any the less, but all the more important. Definitions of these terms, then, are a prerequisite to any exact discussion.

Tuberculosis is the presence of a modified granulation tissue, developed because of, not by, and containing tubercle bacilli.

Phthisis is necrosis of tubercular or associated tissue, developed by the immediate or mediate action of tubercle toxine.

The cause of tuberculosis is single, definite, chemical. The causes of phthisis are manifold, indefinite, variable; mechanical as well as chemical. The cause of tuberculosis is purely noxious. The causes of phthisis are, in part, conservative, protective, and the agencies by which it is arrested. The tissue reactions of which tubercle is the product are all constructive, and imply an excess of nutritive changes. They are dynamic manifestations of a conservative process. Given the cause, the result is no more certain than desirable. The tissue changes which terminate in phthisis are purely destructive, and imply a lack of tissue nutrition and subnormal vitality, while phthisis itself is the cessation of activity. Given the causes, and the results are no more certain than undesirable. All tubercular products are protoplasmic and vital. All phthisical products are degenerative, non-vital, and therefore foreign. Tuberculosis is nature's activity in self-defence. Phthisis is the quiescence of defeat. With the removal of the cause, were that possible, or even while this remains, the cure of tuberculosis is in the continuance of the existing activities; the cure of phthisis is in a reversion of processes, and the repair of injury already inflicted. The cure of tuberculosis along etiological lines is by one means alone, the removal of the bacillus. The victory over phthisis on similar lines may be gained by varied measures, which have often turned the tide of vital power from ebb to flow.

Such definitions are admittedly upon a purely pathological basis, upon which alone all exact discussion and effective therapeutics must be based. To attain the clinical complex commonly called phthisis we must add the inevitable accompaniment of these conditions. They are essentially included in the term inflammation. This term, however, must be divested of all its old-time significance, and the process recognized as nature's defensive activity. Tuberculosis, then, is inflammation, and inflammation is the cure of phthisis. In the first the defensive force acts within, in the second without, the defined area. It is still purely a question of vital dynamics, and the arrest of the phthisis depends solely upon the resultant of the implicated forces, some of which, at least, we know, and none of which we can safely ignore. No measure for the cure of phthisis ever has done or ever can do more than neutralize the destructive or augment the constructive terms of this resultant.

What, then, are these forces?

First, the destructive.

At the head stands the tubercle bacillus and its toxine. The former we

dismiss permanently, for it has become entrenched beyond the reach of our wildest imagination, since we learned from Prudden to fear it as much when dead as when living. The latter, whether the product of living or dead bacilli, it matters not, has, under the light of recent investigations, assumed a new position in the pathology of phthisis. One of the strongest objections to the pneumatic cabinet to my own mind, while under the domination of the older belief regarding tubercular toxæmia, although I have never heard it advanced by the critics, was found in the fact that with increased pulmonary circulation the absorption of toxine must be more active. My anxiety on this score has been enhanced by the frequency with which patients failed to make a gain in weight corresponding to their subjective and objective improvement. The last year's reports of investigations on immunity afford more than hope that this action of the cabinet is also beneficial. The direct local action of tubercular toxine is necrotic; diffused through the blood it excites marked leucocytosis (upon Virchow's authority), and, reasoning inductively from the proven action of many other toxins tested, induces the production of an anti-toxine, with increase of temperature. Von Fodor (*Centralblatt für Bakteriologie und Parasitenkunden*, Jena, v. 7, No. 44) has shown that the germicidal action of the blood is increased with rise in temperature, reaching its maximum at 38° to 40° C. It therefore seems a just conclusion, not mathematical, I admit, that tubercle toxine is locally in the lung a destructive force, but becomes stimulant to the constructive forces when in the blood. The therapeutic indication, to hasten this transference, is perfectly plain. Its value depends upon the accuracy of the observations quoted.

The second class in importance among the destructive forces are the mechanical conditions affecting local nutrition. Of these the most impregnable to ordinary measures are the vascular turgescence, exudation, œdema, and consequent capillary compression, resulting from hyperactivity in the inflammatory processes. It is a matter of common observation that slight amounts of tubercular infiltration are often followed by more rapid extension of consolidation than can readily be attributed to new tubercular development, and that such cases pass quickly into acute softening. I am convinced that in many of these cases the necrosis is due quite as much to the inflammatory compression as to tubercular poison. Whether this be true or no, inflammatory compression is acceptably with obstructed circulation a destructive force in phthisis. In direct association are the vascular and tissue compression from the retained alveolar and tubular contents of decomposing tissue. Nor can we ignore the systemic exhaustion induced by the profitless efforts to remove the offending matter by cough, and consequent failure to effect an entrance for air to the affected areas. Of nearly equal importance are the results of decomposition in the pulmonary contents. Septic action is both local and general, causing depression of local tissue vitality, and a systemic reaction that avails naught for the cure of phthisis, while it seriously drains the vital forces. It is just at this point



that some have been disappointed in the use of the cabinet, from ignorance of the method by which septic products can be removed without stimulation of lymphatic absorption or tissue injury. All the causes of phthisis under this head are primarily mechanical. The indication, to remove them as far as possible, is absolute, and the conclusion mathematical that such removal is a positive factor in the cure of phthisis. Finally, though by no means of least importance, we place under destructive forces the fibrous products of the reparative inflammation. In many cases of chronic disseminated tuberculosis I believe the patient is finally killed by the cure of his disease. The omnipresent fibrous tissue, which has vanquished the phthisis, now constricts the tubes, compresses and obliterates the alveoli, binds down the lung to the thoracic wall, arrests the circulation, and finally crushes out the life, as one would crush a sparrow in his hand. From this we have two indications: first, to stimulate fibrous development until the phthisis is arrested, and, second, to promote absorption when fibrous tissue is in excess or acting injuriously, as in pleuritic adhesions.

With what protecting forces does Nature meet the attack? They may be included under two heads: first, specific, vital, and chemical changes, having sole reference to the bacillus and its toxine; second, the complex local processes denominated inflammation.

With a knowledge of the capacity of the system for producing anti-toxines; the belief based on reasonable grounds that this element is contained in the white cells, if not produced by them; the demonstration that tubercle toxine excites leucocytosis, and the marked purulent character of phthisical sputa, one is tempted to consider more in detail this protective force. A single proposition, however, must suffice for our present purpose. Whatever development of anti-toxine takes place, it is presumably stimulated by the toxine; and whether the product is brought to the local lesion by the white cells, and liberated there by their disintegration, to act locally, or exerts only a systemic chemical influence, its production must be the result of constructive tissue metabolism, demanding expenditure of vital force. We have at least this indication, to furnish all possible elements and stimulants of systemic vitality, among which oxygen is of the highest importance.

It is upon the second class of defensive agencies, however, that we place our main reliance, and the pneumatic cabinet is unique in its relation to these forces. That the local inflammation may become destructive only intensifies our interest in this process as the curative agent in phthisis, and heightens the value of any measure by which it can be modified. Pathological authorities clearly state that thrombosis in inflamed areas is indicative of cessation of tissue activity and inflammation as forces, and that the sluggish circulation and stasis precedent to thrombosis are caused by vascular obstruction. The effects of cold applications to surface inflammation in minimizing destructive changes prove that tissue death is not the cause but the result of the cessation of circulation. To retain the inflammatory

changes as reparative forces thus implies increase of circulation and lymphatic absorption, and conversely increase in circulation and lymphatic absorption must tend to maintain inflammatory repair and tissue vitality.

*Stimulation and moderation of local inflammation* thus becomes our most important indication; the point at which we come in direct contact and co-operation with the essential curative factor in phthisis. And relief of congestion and tension, augmentation of circulation, with increase in lymphatic absorption, assume the first position as curative agencies in phthisis.

From this position I must be driven by cold logic. I cannot be beguiled away.

This brings us to a consideration of the cabinet forces. For brevity, I shall consider at the same time their relations to these established indications.

The pneumatic cabinet is a chamber capable of containing a patient, so arranged that it can be closed hermetically, and provided with appropriate bellows and valves, by which the contained air can be rarefied or compressed at will, and the patient enabled to breathe air at this modified or at the barometric pressure.

The available variations of tissue compression under which the patient respires are:

1. Barometric pressure on the pulmonary, with diminished pressure on the cutaneous surface, called *Negative Differentiation*.
2. Diminished pressure on both surfaces, called *Negative Pressure*.
3. Barometric pressure on the pulmonary, with increased pressure on the cutaneous surface, called *Positive Differentiation*.
4. Increased pressure on both surfaces, called *Positive Pressure*.

#### COMBINATIONS.

Inspiration,	combined with expiration.	Called.
Under No. 1.	Under No. 2.	Forced inspiration.
" " 1.	" " 3.	" respiration.
" " 4.	" " 3.	" expiration.
" " 3.	" " 1.	Obstructed respiration.

Pulmonic percussion; developed by sudden and brief negative differentiation at end of expiration under negative pressure.

Cutaneous percussion; developed by sudden and brief positive differentiation at end of inspiration under positive pressure.

Of these, forced inspiration and forced respiration are among the more important of cabinet motions, but are the ones which have been most persistently ignored. By methods of administration we develop what I have termed pneumatic percussion upon either the cutaneous or pulmonary surfaces.

The forces thus variously combined are: first, simple pressure; second, momentum; third, inertia; fourth, the elasticity of the patient's tissues;



and fifth, the physiological constant vascular and tissue tension, a factor of the utmost importance.

In discussing the cabinet it has usually been assumed, with a most charming disregard of fact, that constant negative differentiation is its only method of application.

Since it is concerning this, however, that there has been the widest differences of opinion, it may well serve as a starting-point for our demonstration.

Among those who have written on this subject, Dr. Platt has approached nearest to what appears to me the truth, yet he, too, I believe, has not apprehended the entire facts. The position of those who deny the claims concerning the pressure effects of the cabinet is succinctly stated in an article by Dr. Solomon Solis-Cohen upon aerotherapy. In describing the methods of using compressed air, he says, "No. 3" (previously described as inhaling from and exhaling into compressed air) "is physically the equivalent of the pneumatic cabinet." Dr. Platt has apparently arrived at a similar conclusion. To my mind there is a fundamental error in the assumption, which Dr. Platt has clearly formulated, that since the change of pressure *per se* is no more than that associated with frequent barometric oscillations, it must be the *difference* in pressure *alone* which is the active factor, and therefore fifteen pounds pulmonic pressure, and fourteen pounds surface pressure (approximately, the common cabinet condition) must produce the same results as sixteen pounds pulmonic pressure, and fifteen pounds surface pressure which may be developed by compressed air. This I cannot admit, while expressing my surprise that it should ever have been necessary to deny that either in the cabinet or anywhere else there is, strictly speaking, such a thing as aspiratory force. Aspiration is simply the removal of forces opposing atmospheric pressure, and the resulting motion is due to a liberated, not a developed, force. That there are results due solely to difference in pressure I freely admit, but claim that they are confined to mechanical distention of the thorax and lungs, a result in itself of little consequence, while the therapeutic results depend upon the absolute degree of the differential pressures, and that result will be modified, without special care in administration, by the altitude at which the cabinet is employed.

Motion, or, more exactly stated, momentum, depends solely upon difference in opposing forces. *Compression* of any matter between these forces depends solely upon their *absolute degree*.

One who has ever been caught in a crowd will appreciate the point in recalling how much easier his breath came when the man in front gave way than when the man behind pushed harder, although his momentum was the same in each case. It is this *compression effect* that appears to me to have been entirely overlooked, yet it is the important factor in determining pulmonary circulation and lymphatic absorption.

Every animal is provided with an economy fitted to its environment.

Ours is that of a constant surface air-pressure of approximately fifteen pounds to the square inch, and while we are able to endure moderate variations, and to successfully accommodate ourselves to these changes, the slightest variation in atmospheric pressure nevertheless produces its effect upon our circulation. If the arguments in support of equivalent results from compressed air and cabinet are to stand upon the postulate that it is the difference alone, and not the degree of pressure, which is dynamic, the converse of this proposition must also be true, that so long as there is no *difference* in pressures, no effect will be produced by change in absolute pressure either upon expansion or the ratio between pulmonary and systemic circulations.

The spinal and cerebral congestion of caisson pressure and the nasal, ocular, and pulmonary hemorrhages of high altitudes are gross and indisputable proofs that this is not true. Moreover, as these vascular disturbances are the result of change in absolute and not relative pressure, their initiation must coincide with the earliest change in that pressure. They also demonstrate the potential value of the force opposing atmospheric pressure. This force is the constant vascular tension. Now, as vascular tension is fixed, until modified reflexly, the effects of varying atmospheric pressure will be greatest in parts least protected by tissue resistance, and will vary with the degree of that resistance.

Again, as both vascular tension and mural modification of this tension are least in the capillaries, changes in surface pressure will first affect the capillary circulation, the point at which *nutritive interchange takes place* between the blood and tissues. This conclusion appears necessary, then, that the absolute, quite as certainly as the differential pressure, not only determines the ratio of hæmic distribution to the tissues, and the tension under which such distribution takes place, but especially modifies nutritive activity. It is thus seen to be a law of physics, as well as a matter of general knowledge, that when atmospheric pressure increases, the circulation is obstructed, and vascular tension raised, while the blood accumulates in parts *least compressed*; and that the flow is more free, under diminished tension, when pressure is lowered, while vascular turgescence appears in parts *least protected*. It is an interesting coincidence, and pertinent proof of the pathological significance of even slight changes in absolute pressure, that during the very meeting of this Association at which Dr. Platt claimed as the basis of his argument that absolute pressure *could not* be a factor in the cabinet forces, Professor Loomis drew attention to the danger in certain cardiac diseases from the pulmonary congestion incident to an elevation of only two thousand feet. Permit me to ask your special recognition, then, of the fact that in the important motions of the cabinet pulmonary circulation goes on under barometric or diminished pressure, and that in this fact lies the great difference in its value from that of compressed air.

An analysis of the most valuable of the cabinet motions must suffice to



explain all, and to demonstrate its value not only in phthisis but in many other conditions.

A patient sits in the cabinet while gradual rarefaction to, say, one inch of mercury is made. The entire cutaneous and pulmonary pressure is diminished by approximately one-half pound per square inch, with these results : Respiratory motions are not appreciably affected. The vessels are dilated everywhere, but more in the lung, with the result of slowing the circulation at all points, but again to a greater degree in the lung ; a condition of essential pulmonary congestion, developed in precisely the same way as at high altitudes, but differing from that following inhalation of rarefied air in being modified by the dilatation of the cutaneous vessels. This condition, admittedly undesirable as a permanency, I regard as one of the most valuable factors of cabinet therapeutics when properly adjusted to other effects. This congestion under the assumed or even greater rarefaction is unappreciable objectively, except by the reflex quickening of the heart's action, unless maintained for some time. In cases of vaso-paretic asthma, where the pulmonary circulation is already embarrassed, the subjective evidence of this change in increased dyspnoea may be distinct, though vastly less marked than the blessed relief afforded by compression of the cabinet atmosphere, which shows equally a disproportionate effect upon the pulmonary circulation. With the commencement of rarefaction the air in the lungs acquires a diminished tension, and any that may have been imprisoned by mucous plugs under previous atmospheric pressure tends to drive out such obstruction. As this is the sole therapeutic result of this motion uncombined, and one of little value, it never becomes necessary to continue the condition long enough to cause undesirable pulmonary congestion.

In this condition of moderate pulmonary congestion and equal pulmonary and surface pressure, the patient takes the breathing-tube in his mouth.

If, now, the controlling-valve be suddenly opened, he receives upon his entire pulmonary surface what I have denominated the pneumatic blow, followed by a rapid influx of air. This blow, like any other, causes a tissue traumatism, apparently not of contact, but by sudden stretching of the pulmonary tissue. Although the stroke is instantaneous, from the rapid equalizing of pressures, the acute tissue distention continues. That time is a potent factor in determining the results of tissue distention is conspicuously illustrated in precipitate labors. The rapidity with which air is allowed to enter the lungs in this motion regulates the traumatic effect of both percussion and distention. That it may be obtained with compressed air, and presents an element of danger, does not detract from its value, but does display another reason why mechanical and unappreciative use of the cabinet has ended in disappointment. I have found the therapeutic value of this motion to be, first, in removal of pulmonic *débris* without stimulation of circulation. The pneumatic blow alone, developed by quick opening and immediate closure of the valve, is a surprisingly simple and

effective stimulus to cough, and is usually quite sufficient for removing loose products. When indicated by diminution of sputa, partial or complete expansion may be added. Quite frequently this, without the blow, will be sufficient.

The motion is of value, second, in modifying fibrous growth. For this purpose more or less acute distention is to be preferred to the blow, as that is too apt to excite cough. I believe that its relations to our established indications are clear. I have before this publicly stated my convictions that one element of evil in the tubercle bacillus is the extreme narrow limits within which it can exert its necrotic power, and the consequent absence at times of active inflammatory processes. A miliary tubercle of almost microscopic proportions may be distinctly caseous at its centre, while its peripheral cells show little formative and no degenerative changes, and the adjacent tissue is essentially normal. Is it possible to stimulate a productive inflammation which shall prevent tuberculosis from becoming phthisis? It is a well-recognized principle of tissue reaction that repeated transient traumatisms of moderate degree are productive of fibroid growth, while similar traumatisms at prolonged intervals induce absorption of fibrous tissue. It is this principle which leads us to use the sound on a stricture at intervals of four or five days, possibly after we have had the mortification of seeing it grow tighter under daily treatment, and which I have followed, as I believe, with success in the use of the cabinet. On the side of fibroid stimulation it is, perhaps, impossible to adduce clinical facts to support this position. I am convinced, nevertheless, that in cases of disseminated tuberculosis, and even when pulmonary tissue is breaking down under adynamic local processes, this tissue traumatism stimulates repair and local nutrition. When we turn to fibroid absorption the clinical evidence of success is unquestionable. In removing pleuritic thickenings and adhesions, the results are both grossly evident and quickly obtained. In fibroid induration the effect is less satisfactory, and its evidences at times more subjective than objective.

To gain the stimulant effect of this motion, treatment should be given daily, and its degree moderated to each case; to promote absorption, not oftener than twice a week, and better at longer intervals. That the pneumatic blow is actual and not theoretical may perhaps be better appreciated in the knowledge that the pressure removed from the thorax, and, consequently, the weight which is diffused in its impact over the pulmonary surface is often from two hundred to five hundred pounds.

Returning now to the condition with the patient in negative pressure, if, instead of suddenly, the air-valve be opened slowly, the results are very different. With conditions of vascular fulness as before, the pulmonary pressure gently increases to normal. Under diminished opposing forces the thorax is easily dilated and hyperdistended, until elastic tension equals the diminished surface pressure. The active force is one of pressure from within, and acts in all directions upon the exposed surfaces. Alveoli are



distended, or if collapsed opened, and the slow air-current has little tendency to drive back the elements of the sputa; and, since it is inconceivable that any masses should adhere to the tubes with equal force at all points and slide along their lumen, it will detach them at some point, and pass beyond in excess, so furnishing increased expulsive capacity. Alveolar contents are similarly loosened and expelled. Upon the overfilled pulmonary vessels the pressure is increased, or, more exactly, restored to normal. With intact pulmonic valves and competent right heart, competent simply to maintain a circulation under normal pressure, it is impossible that the result should be other than to increase the discharge of blood from the lung to the left heart, by which it is easily thrown into the dilated systemic vessels.

With the lung in this condition, alveoli distended, and pulmonic circulation going on, under normal pressure, expiration may be by voluntary effort through the tube, or by releasing the tube, and allowing the hyperdistention of the thorax to cause expiration into the rarefied air of the cabinet. It is the former, respiration under constant negative differentiation, that most writers have assumed to be the principal and most valuable motion. It is the one claimed as the equivalent of compressed air, and as producing the same obstruction to the circulation.

Now, the force which maintains pulmonic circulation is the right heart, and, while I admit that an increased proportion of blood is retained in the systemic circulation, there is no abnormal obstruction to the action of the right heart, and so no hinderance to the propulsion of all the blood it receives, while the dilated capillaries and venous turgescence offer no obstacle to the delivery of blood to the right heart. I do not claim that more blood is passed through the lung in a given time, but that, with a diminished pulmonic circulation as regards quantity, this circulation takes place without obstruction under lower vascular tension, and that in this we find the reason for its use. The condition is, in kind, precisely what we seek in pulmonary œdema or pneumonia by cupping the thorax, or by venesection, with a view of producing absorption of the œdema or relief for the staggering right ventricle. In the cabinet we simply make the cupping general and constant, instead of local and intermittent. It is, therefore, the motion we employ to diminish pulmonic vascular tension without producing obstruction, and to promote lymphatic absorption. As this latter will include all soluble elements, the motion plainly should not be employed until all possible septic matters have been removed from the lung by the method previously indicated. The therapeutic applications are legion. In acute pulmonary congestion, acute or chronic bronchitis, pneumonia, serous pleurisy, an embarrassed right heart from any cause, lesions of the cardiac valves, cerebral or spinal congestion, and undoubtedly in pulmonary œdema, this treatment is most successful. A very limited experience affords a belief, which is strengthened by the testimony of Dr. William B. Wood, that cardiac degeneration may be delayed, if no more, by this measure. To confine myself to phthisis, it is *without exception our most powerful measure*

for the arrest of hæmoptysis. Many fears have been expressed that pneumatic treatment would cause hemorrhages. It is clear that in conditions of acute softening, or that rather theoretical case where a patent vessel crosses a cavity, vascular rupture may be induced. When, also, a profuse hemorrhage and the physical signs point to acute local necrosis as its cause, the cabinet must be used with great caution in such a way as to diminish vascular tension without tissue distention until healthy inflammation has closed the bleeding vessel. So far, then, from not admitting, I desire to emphasize these dangers, as well as that of perforation in the third stage, when necrotic changes are active. Such admission, however, only serves to enhance my claim that the cabinet is our only means of measurable value in controlling these hemorrhages, and that it can be used with *absolute safety*. So long as a patient can stop spitting blood long enough to take the tube into his mouth and breathe, there is no method which can be compared with the cabinet for the arrest of his hemorrhage. When he is not spitting blood constantly, negative differentiation with the highest rarefaction under which the patient can resist taking full inspirations is to be used. If he is too weak to be trusted not to take a full inspiration, this may be made impossible by an adhesive strap applied about the chest, and a broader one about the abdomen. The amount of surface thus deprived of the cupping action is not material. The effects of the cabinet already described should make clear the proof of these claims. The pulmonary vessels are not deprived of their normal support, while the cupping action of the rarefaction over the entire cutaneous surface affords marked diminution of vascular tension. The relief to internal circulation is immediate, and its degree greater than by any other means. Clinical confirmation is abundant. I have rarely seen hemorrhages after two or three treatments, although many patients were spitting blood when first put into the cabinet. Not infrequently hemorrhage ceased with the first treatment. Is compressed air the physical equivalent of this, even clinically? Compressed air in the lung is a direct obstacle to the pulmonic circulation, while no relief is afforded in systemic dilatation. That the effects upon the pulse are the same, and possibly the patient's subjective sensations are the same, is to be expected, since the heart's action is quickened by lowered as well as by increased tension, and oxygenation diminished by slowed circulation from any cause. If the two are equivalent, why do we not employ compressed air for the relief of pulmonary oedema, when it can be applied so easily to the entire lung surface, rather than use cups over such limited areas? So long as it is assumed that this motion of negative differentiation is to fulfil all the indications in the treatment of phthisis, it is easy to point out its inadequacy. When it is discussed in relation to specific indications, I claim that it is unassailable and unequalled.

This brings me to that motion of the cabinet which I regard as the most comprehensive, but which has received little attention. It is the alternation during each respiration of negative differentiation and negative pressure.



If in negative differentiation the patient, after maintaining full inspiration until a circulatory equilibrium is established, instead of making voluntary expiratory efforts, drops the tube from his lips after closure of the valve, and exhales into the rarefied air of the cabinet, distinctly new and valuable conditions are developed. With the sudden decrease of pulmonic pressure, the thoracic tension causes a similar expiration, which bears with it loosened alveolar and tubular contents. In many cases the amount of sputum disengaged by slow expansion, with the slight irritation incident to overdistention, will so strongly excite cough that one has no choice as to how treatment shall continue. Indeed, unless septic absorption is to be especially avoided, this motion will usually be quite sufficient for the removal of sputum elements. Whether the patient drops the tube from necessity or by direction, the pulmonary vessels are now under the same diminished pressure as the cutaneous surface. Again, the results of absolute as distinguished from differential pressure are manifest by congestion at the points of least resistance, the pulmonary surface. The previously depleted pulmonary vessels are refilled, and the ratio of circulation is once more in favor of the lung. Under moderate rarefaction this condition is hardly more than active hyperæmia, and has no appreciable effect upon the right heart, unless it be diseased. With each succeeding respiration the succession of changes is repeated. During inspiration the increment in propulsive force is exerted upon the pulmonic circulation by restoration of normal atmospheric pressure. In expiration a similar increment is found in the relative influence of general negative pressure. The blood is thus pumped into and out of the lung in the physiological direction with each expiration and inspiration, and this *without increase of vascular tension*. In expiration the vessels are overfilled. In inspiration they are depleted, but in neither is any obstruction placed upon the circulation. If I am in error on these points, no one's eagerness to indicate that error can equal my anxiety to be set right, for I have no desire to continue an occupation which possesses far too much of the excitement of the treadmill if I am not gaining large results in the cure of phthisis. If, however, as I believe, my facts are correct and my conclusions mathematical, the effects of this motion upon pulmonary phthisis are curative and certain by preventing inflammatory stasis, increasing lymphatic absorption, augmenting nutritive supply, and removing both septic products and mechanical obstructions to circulation and respiration.

Thus far I have mentioned topical medication only in criticism. This is not from lack of faith, but because a support based on error weakens rather than strengthens. I do not now propose to discuss the value of antiseptic treatment in phthisis, simply to express my own faith in it. If one of the causes of phthisis is sepsis from decomposing pulmonary contents, it is a gain if we render any portion of this matter aseptic. If inhalations outside can do this, they must do more when given by the cabinet, since the volume of inspired air is from fifty to seventy-five per

cent. more than in normal respiration. This air must go somewhere, and carry with it any antiseptic vapor, *not spray*. When one lauds the gently-healing influences of loving Mother Nature that drop like dew from every glistening needle and load the spicy air that murmurs through the pines, it is not the poetry that kills the bacteria in rotten spit, but it is plain turpentine and ozone that can be sucked through a tube out of a tin-cup with just the same results, so far as the antiseptis is concerned. By this I do not intend to disparage poetry, but to differentiate chemical antiseptis from the climatic treatment of phthisis. That with the cabinet elements susceptible of vaporization can be put into the blood through the lungs is demonstrated clinically. I have thus made patients tipsy with alcohol, dizzy and nauseated with ozone. These substances must have been absorbed from some part of the pulmonary mucous membrane, and consequently must have gone through the lymphatics or vessels. The value of such applications is determined by experience alone. Personally, I believe that with the cabinet I accomplish a more valuable amount of pulmonary antiseptis than can otherwise be attained.

To avoid repetition, I have attempted to indicate in tabular form the relations of these pneumatic forces to the causative and curative agencies in phthisis. It is for you to decide whether I have sustained the claim *that the cabinet must act curatively to a greater or less degree upon all the factors of phthisis, except the bacillus itself*.

RELATIONS OF THE PNEUMATIC CABINET TO THE DESTRUCTIVE FORCES OF  
PULMONARY PHTHISIS.

T H E  C A B I N E T	{	A. SPECIFIC.	
		1.—Does not directly affect	1.—The tubercle bacillus.
		2.—Limits by rapid absorption	2.—Tubercle toxine necrosis.
		B. LOCAL AND MECHANICAL.	
		3.—Diminishes	3.—Tissue and vascular compression from
		By (a) absorption of	(a) Inflammatory exudate.
		(b) removal of	(b) Necrotic products.
		4.—Loosens and removes	4.—Alveolar and tubular obstruction, causing
		Thus (a) Reopening	(a) Collapsed alveoli.
		(b) Allaying	(b) Local tissue irritation.
		(c) Restoring	(c) Deficient oxygenation.
		(d) Diminishing	(d) Septic decomposition.
		(e) Preventing	(e) Systemic infection.
		(f) Minimizing	(f) Septic fever.
		5.—Stretches and absorbs	5.—Pleuritic fibroses, arresting
		Thus, Restoring {	(a) Respiration. } Oxygenation.
			(b) Circulation. }
		C. SYSTEMIC.	
		6.—Diminishes and retards	6.—Systemic malnutrition, from
		By (a) Removing	(a) Respiratory obstructions.
		(b) Increasing	(b) Weak circulation.



RELATIONS OF THE PNEUMATIC CABINET TO THE CONSTRUCTIVE FORCES OF  
PULMONARY PHTHISIS.

T H E  C A B I N E T	{	A. SPECIFIC.	
		1.—Increases nutrition of	1.—Tubercular granulations.
		2.—Makes dynamic	2.—The potential value of toxine (?).
		B. LOCAL.	
		3.—Favors and moderates	3.—Productive inflammation, depending on
		By (a) Traumatic increase of	(a) Local irritation.
		(b) Removing obstruction to	(b) Freedom of circulation.
		(c) Augmenting	(c) Nutritive vascular supply.
		(d) Increasing	(d) Lymphatic absorption.
		4.—Stimulates	4.—Local tissue vitality, depending on,
		By (a) Increasing	(a) Circulation.
		(b) Restoring normal	(b) Anatomical conditions.
		C. SYSTEMIC.	
		5.—Stimulates	5.—General glandular activity, from
		By (a) Improving	(a) Circulation.
		(b) Doubling	(b) Respiratory capacity.

It may appear strange that I present no clinical reports in support of my position. That is precisely what I desire not to do. I claim now to *demonstrate* that the cabinet, scientifically applied, must act favorably in phthisis. Clinical results determine the degree rather than the character of this action. Of what the cabinet can do alone in the cure of phthisis I have no knowledge, for I omit no measure of proven value in treating this disease. To extract from my results the value of this one factor is a matter of judgment, and instantly introduces the personal element, which is suicidal to my present purpose. If, however, my opinion will be received and valued, solely upon the basis of my ability to judge whether a given patient has done better than could have been possible under other methods, I am glad to say what I *believe*, after six years' trial of this instrument. I now believe, setting aside a small number of chalk-and-water individuals, who seem to be made as culture-beds for tubercle bacilli, that from seventy-five to eighty per cent. of localized tuberculosis, if seen reasonably early in the first stage, can be brought to and kept in a condition of practical cure by the use of the pneumatic cabinet and adjuvant measures other than climate; that cases of disseminated tuberculosis will be arrested in about fifty per cent. of cases, but will require treatment for long periods; that subacute cases may be arrested and made quiescent, when seen first in the second stage, in possibly fifteen per cent. of cases; that third-stage cases, if chronic, are always relieved in their rational symptoms, and their downward course made easier; while those following acute consolidation are benefited but little, if any, and without care may be made worse. Bronchial hemorrhages are arrested almost without exception, and frequently do not return, even when the cases progress unfavorably. With rare exceptions all the subjective symptoms are relieved, even when the phthisis is not arrested.

In conclusion, I frankly admit that this belief may be tinged with hope ; but that hope is founded on an unfaltering faith that the laws which govern the complex processes we grossly call disease are as fixed and absolute as those which guide the planets. The melody of human life seems discord because our ears are dull.

## THE KAKKÉ HEART.<sup>1</sup>

BY ALBERT S. ASHMEAD, M.D.,

New York.

DR. WILLIAM A. THOM, JR., physician to the British Vice-Consulate at Norfolk, Virginia, tells me, in reference to the recent cases of beriberi received at St. Vincent's Hospital, that "a prolonged first sound of the heart was present in nearly all the cases, and in some was so great as to be considered by one of the physicians as a hæmic murmur."

Perhaps the following observations by various observers in Japan as to the condition of the heart in kakké will not be without interest.

Probably the earliest reference to the condition of the heart in this disease is that made by Son-shi-ba-ku,<sup>2</sup> about 640 A.D. He speaks of *kakké-nin-shin*,—that is, kakké affecting the heart.

• Oto,<sup>3</sup> another Japanese, 750 A.D., wrote also about it, calling it *shiyo-shin*, which means, the heart is knocked. Tachi-bana Nan-kei,<sup>4</sup> whose work on kakké, published in 1804, is probably the best known native treatise to the medical profession in Japan, speaks of *shiyo-shin* as being a serious, generally fatal complication.

Hoffman<sup>5</sup> states that in his cases "the first heart tone was always changed ; it was mostly hollow and prolonged ; it showed often, as happens in all strong cardiac excitations, a scraping, somewhat ringing sound ; it was not really accompanied with a murmur. Systolic and diastolic sounds likewise were very variable in intensity and character, and the latter often disappeared again a few days after their first appearance. Sometimes, but not often, the increase of the heart-beats is due to concomitant endocarditis, or at least is made worse by it. The endocarditis appears usually with a quite

<sup>1</sup> Communicated to the Sei-I-Kwai, or Society for the Advancement of Medical Science in Japan.

<sup>2</sup> Although kakké as a disease is referred to already in the "Kinki" ("Golden Chest"), one of the fundamental works of Chinese medicine, which was written by Cho-Chiyu-Kei about two hundred years after Christ.

<sup>3</sup> In "Sen-kin-ho" ("Thousand Golden Prescriptions").

<sup>4</sup> Title of book "Gen-dai-hi-yo-ho" ("Secret Useful Prescriptions of a Provincial Official").

<sup>5</sup> Th. Hoffman, Die Japanische Kakké, Mittheilungen der D. G. Ostasiens, Heft 2.



insignificant fever, but with strong increase of oppression and palpitations; its seat is almost exclusively in the left heart. It is almost without exception characterized by systolic flatus over the left ventricle, while over the right ventricle there is heard mostly a scraping sound, occasionally accompanied with a more or less distinct but comparatively weak noise. . . . While in the heart there is generally an increased effort and heightened excitation, the pressure of the blood in the aortic system is almost always abnormally small. . . . Generally congestion in the venous system, especially in the small circulation, which is recognized by great fulness, sometimes also pulsation of the jugular veins, by cyanotic coloration of the skin and mucous membranes, and by asthma."

In another series of cases there exists, besides the diminished aortic pressure, "an abnormally small filling of the arteries, so that in advanced stages the radial arteries appear to the touch as mere threads. The pulse is, as a rule, normal, rarely passes one hundred pulsations; in heart palpitations it reaches one hundred and forty and more. The contractions of the heart are weak and without energy."

Referring to the death by suffocation or paralysis of the heart, the same author mentions the inability of the ventricles to completely fill themselves, "for the radial arteries are soon reduced to the thinness of a thread, the pulse is almost imperceptible, and the skin quite pale. Death occurs through the final impossibility of the diastole."

"Some patients," says Hassi-moto,<sup>1</sup> "complain of peculiar sensations in the cardiac cavity. The latter three symptoms (embarrassed respiration, vomiting, and a feeling of suffocation) are designated in Japan by the word *kakké-schoschin*. The rhythm of the motions of the heart changes according to the period of the disease. Sometimes the contractions follow each other so rapidly, and with such irregularity, that it is hardly possible to count them. The contractions of the ventricles are sometimes not transferred to the arteries, as happens in a normal condition. In advanced stages of the disease one hears a reduplication of the second sound, so that three sounds can be distinctly heard. The first sound is seldom reduplicated. Sometimes a blowing is heard. Sometimes, on the other hand, neither reduplication of the second sound nor blowing can be perceived, and the manifestations besides are not constant. Aspection as well as percussion shows nothing abnormal in the thorax." (I may say here, in passing, that the author evidently overlooks the palpitating thrill and the increased area of dulness from hydropericardium.) "The temperature of the lower extremities is diminished by some degrees. The pulse beats about one hundred times. Before the appearance of the œdema the arteries especially pulsate with force. With the appearance of the œdema in the cellular tissue, there occurs an abatement of all the threatening symptoms; the

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<sup>1</sup> Tsunatsuné Hassimoto, Inaugural Dissertation. Published by the Faculty of Würzburg, 1876.

patients have a subjective feeling of being better. Sometimes a venous pulse occurs. Dyspnœa constant, the peculiar feeling of pressure in the epigastrium very alarming." In looking for the cause of this dyspnœa, he considers "the paresis of the respiratory muscles and a peculiar degeneration of the blood-corpuscles, which have partly lost the power of operating as conductors of oxygen."

"The vascular system," says Baelz,<sup>1</sup> "is regularly involved, but it is a mistake to make it the centre of all the manifestations, for these cannot be explained in a satisfactory manner by this means. The phenomena of the vascular system are preponderatingly of a nervous, vaso-motor nature. Palpitation and increased frequency of the pulse belong to the most common symptoms of kakké. An increase of the cardiac contraction may also be objectively shown sometimes; the strong contractions of the heart and the violent agitations of the chest can often be seen at a distance of several steps. A feeling of rubbing on the heart, and other symptoms of an inflammatory affection of the pericardium, is exceedingly rare. Nor have I been able to discover once endocarditis."

"On percussion we find in most cases of dropsical kakké a generally increased cardiac dulness, which reaches, on the left side, over the impulse-beat; the latter is then only indistinctly felt. This increase of cardiac dulness is always caused by hydropericardium. In auscultation, accordingly, the cardiac sounds are heard in a muffled manner. The first sound at the apex is indeed loud, but not distinctly circumscribed; frequently there is heard in that place a distinct systolic soft blowing, which, however, has nothing to do with endocarditis. The first sounds in the great vascular orifices are often also accompanied by a blowing murmur, especially in the pulmonary artery, whose sounds are generally muffled in a remarkable degree. The pulse is frequent, seldom less than eighty pulsations per minute, mostly ninety to one hundred; in severe cases, especially of the acute form, the frequency reaches one hundred and twenty to one hundred and forty beats, and often with perfectly normal temperature. The pulse-wave is often very large, but not hard, on account of the small degree of elasticity of the arterial walls. But sometimes the pulse-curve and beat of the carotids reminds one forcibly of aortic insufficiency, and I would not deny that cases may occur where the vascular system is so overfilled that increased activity of the left heart may produce a *pulsus magnus, durus et celer*. The pulse never gets slower, hardly ever irregular. It has not been shown that the larger arteries are diseased, but the smaller vessels, especially the capillaries, are often inflamed and somewhat degenerated. Like the heart symptoms which we have mentioned, the feeling of heaviness and pressure in the epigastrium, so common in this disease, has doubtless a nervous origin; it may be accounted for by disturbance of the vagus or by an affection of the phrenic nerve. The latter is especially involved in acute

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<sup>1</sup> E. Baelz, *Infections Krankheiten der Japanesen*. Tokio, 1882.



pernicious cases in which the feeling of heaviness in the epigastrium reaches tremendous degrees, so that the most horrible anxiety is clearly written on the face of the patient."

A principal hinderance to the normal action of the heart is offered in many cases by the already mentioned hydropericardium, a very frequent partial symptom of dropsy.

The breathing in such cases is short, flying, and amounts to fifty efforts in a minute. There is no cough in simple kakké.

"The heart-sac is, in the hydropic form, distended by a more or less abundant clear serous fluid. Exceptionally a quantity of curdled fibrin is found in the serum. Pericarditis is not observed. In most cases the heart is increased, the left ventricle thickened in its wall, the right much dilated, filled with blood or coagula; the same with the right auricle. The flesh of the heart is now of normal color, now abnormally pale. I have never observed, macroscopically, visible signs of fatty degeneration. Even microscopically I could not always find it, the transverse striæ remaining perfectly distinct, as has been in other autopsies emphatically stated. In other cases—in such as had, during life, offered strong vagus symptoms—a large number of the muscular fibres in the right heart, even more than in the left, were degenerated. The transverse striation was indistinct, or had entirely disappeared, the continuity of the fibres was frequently changed into detritus. Always the muscle nuclei were decayed and surrounded by larger or smaller quantities of fat globules and pigment. Their number was also increased. In some parts there existed a strong inflammatory interstitial infiltration. Ectatic lymph-spaces filled with coagulations I have found in two cases in the wall of the heart."

"The endocardium was always normal, or showed only light fatty degeneration of the endothelium cells,—never disease of the valves. The great arteries are not changed. Abnormal narrowness of the large vascular branches, as it has been described by others, I never observed."

"The smallest arteries showed in the musculature, and the nerves often, a thickened wall with a decaying nucleus; the capillaries the same. This modification, which can be shown anatomically in the small vessels, does not warrant us to consider kakké as a primary diseasement of the vascular system; the smallest vessels belong to the organ in which they course; there would be otherwise no local inflammation at all, as the vascular walls are always diseased in inflammation."

"The heart has, as a motor and (according to Eichhorst's observation) trophic nerve, the vagus, whose degenerative disease explains all the symptoms."

"The blood of beriberi patients," says Wernich,<sup>1</sup> "shows the qualities

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<sup>1</sup> H. Wernich, *Geographische Medicinische Studien*, Berlin, 1875; and *Klinische Untersuchung. über die Japanische Varietät der Beriberi Krankheit*. Virchow's Archiv, B. lxxi.

which especially distinguish a blood regenerated insufficiently by new elements and poor in serum. The circulation in the capillaries and veins is lazy and uncommonly easy to stop, without the appearance in the vessels, even after the stopping process, of other than very trifling reactions."

"In a large number of anæmic and ill-fed individuals there arises a constitution of the arteries which, beside the palpable qualities of an easily stopped pulse, very variable in number, height of wave, and tension, is distinguished by distinct divergences of the pulse-curves, and may maintain itself unchanged for years. During the beriberi season this pulse-curve gets slightly worse in lighter cases and, in such patients as have sickened early, as long as moderate symptoms exist still. In severer cases it takes a form which shows great laxity and little power of reaction, as well as defective elasticity of the arteries. In fatal cases the curve resembles most that which accompanies an insufficiency of the aortic valve on one side and with that of severe cases of typhus on the other. In the same measure as the convalescence (of lighter or severer cases) advances the curve approaches the normal line."

"In the heart, several older observers mention increase of area of dulness, murmurs during the systole (more frequent), murmurs during the diastole (more seldom).

"Along with these there is a large number of subjective statements, among which the most constant are feelings of oppression, præcordial anguish, and a feeling 'as if the heart was hanging loose on a thread in the breast and was executing pendulum motions against the chest.' Palpitations of the strongest degree are complained of and to be objectively verified."

"All auscultatory phenomena—the general well-known ones, the very rare diastolic murmurs—are explained, according to recent observations, by the insufficient and irregular filling of the heart."

"As to the percussion symptoms,—the increase of the area of dulness,—it is due for a smaller part to the passive dilatation of the right ventricle, for the greater part with a filling of the pericardial sac with the same serum, as we find it in all serous cavities, in the cellular tissue of the subskin, etc., with all beriberi patients. If for the only justified designation 'hydropericardium' the designation pericarditis is used, this is a mistake. But it is a still greater mistake to subordinate an endocarditis to the other phenomena."

"No inflammatory condition of any kind, neither endocardial nor pericardial, can be shown in the heart of the beriberi patients. The corresponding anatomical symptoms are lacking, the clinical ones are explained by defective filling with blood. The musculature of the heart sickens at a later date in consequence of the poorness of nourishment which results from the latter circumstance, and in convalescence it is not always regenerated completely enough to react against a merely eccentric hypertrophy (of the heart)."

It will be observed that there is some discrepancy between the two last quoted authorities as to the presence of endocarditis.

"In the vascular system," says Remy,<sup>1</sup> "the symptoms are very pro-

<sup>1</sup> Ch. Remy, Notes Médicales sur le Japon. Paris, 1883.



nounced palpitations, frequency of the pulse, œdema. In the cases of œdema there is hydropericardium, but without pericarditis. This accounts for the increase of cardiac dulness and of the smothered sound of the heart-beats. Frequently there is a systolic blowing at the first sound, but it cannot be referred to endocarditis. It can also be heard at the mouth of the large vessels, especially in the pulmonary artery. The heart, whose contractions may have seemed at the beginning more energetic, soon weakens, softens. Seldom the pulse is at less than eighty, often it rises from ninety to one hundred, and in the grave cases, the acute forms, reaches one hundred and twenty and one hundred and forty pulsations, which contrasts with a normal temperature. The blood-wave is large, but the pulse is not hard; it reminds in some cases of the pulse of aortic insufficiency. But usually it is soft and readily compressible. It never grows slower or irregular."

"The blood which flows out of the vessels is dark red and more fluid than in any other disease. We know what modification the microscope has revealed in its elements; parasites were not found in it as yet. The diminished cohesibility which Wernich had pointed out among the red corpuscles has not been found again. Baelz found that the kakké patients furnished to him a blood whose corpuscles formed as long rolls as his own, which he used as a term of comparison. Among the vessels there is observed around the small capillaries which are located in the œdematous tissues an accumulation of round cells. The same has been observed in emaciated subjects. This would have been a leaning point for Wernich's theory, but the specimens which I have been able to examine, thanks to the kindness of Dr. Baelz, allow of no conclusion."

"As to acute or chronic inflammation, the same lesion is observed in all œdemas as well as in all considerable emaciations. It is found in the skin of the tuberculous as well as in that of the cardiac dropsical. The capillary alteration is more evident in the muscles. Wernich pointed out the slight thickness of the walls of the big arteries as one of the leading features of the autopsy. No other author mentioned it since, and its part would be difficult to understand in the pathogenesis of the symptoms of kakké. In some cases there existed a slight amount of arterial atheroma, as simply fatty spots of the interior coating. These spots extended sometimes into the ventricular cavities, and upon the valvulæ, but there is never a valvular lesion distinct and peculiar to the disease. However, the heart is always seriously altered. Hydropericardium is observed, which is produced by no lesion of the serous membrane. But this is not the constant and serious lesion. It is the degeneration of the myocardium. The volume of the heart is slightly increased, the ventricular walls a little thickened, their color slightly modified, sometimes pale. The cardiac muscular fibre is the seat of a most evident fatty degeneration, associated with a peculiar fragility, which reminds of the vitreous degeneration. The transversal striation is masked by granules which form themselves into groups, and get mixed with the pigment-grains of the intramuscular

nucleus. Dr. Baelz mentions, moreover, some points of interstitial myositis with dilatation of the lymphatic spaces by fibrinous coagulations. The right heart is more degenerated than the left. This lesion explains perfectly the cyanosis and the great perturbations which precede death. But nothing in this examination accounts for the production of the rapid and circumscribed œdema of the initial period."

"To complete the study of the circulatory circle, let us add that the smallest veins are often overfilled with blood, which flows in abundance during the necropsy."

I hope that these quotations have not been uselessly prolix. They show that a prolonged first sound has been found in all the stages of the disease. The differences of opinion on other points may well be accounted for by assuming that the disease has been studied by the different observers in different stages.

The first or systolic sound of the heart occupies say four-tenths of a circle; during it the ventricles are contracting, the auricles dilating, the auriculo-ventricular valves are closing and closed, and the semilunar valves are opening and open. The causes of the first sound are the rushing of the blood through the auriculo-ventricular orifices, the impulse, the shutting of the auriculo-ventricular valves, the rushing of blood through the aorta and pulmonary artery; but most important of these causes is the shutting of the valves. In beriberi the following nerves connected with the heart and vascular system are especially involved:<sup>1</sup>

1. The vagus, or propelling nerve of the heart. From the paralysis of the peripheral filaments of this nerve result: diminished vis a tergo, dyspnœa, paralysis of the vocal cords and respiratory muscles, irregularity of movement of the heart.

2. The spinal nerves, sensory and motor. From their paralysis result hyper- and anæsthesia, paralysis of the extremities, and respiratory muscles.

3. The vascular nerves, vaso-motor. From their paralysis result: increased volume of blood in the capillary system, stasis of blood in the veins, œdema, cyanosis, and incomplete filling of the right auricle.

At the commencement of the first sound of the heart, when the ventricle is beginning to contract to throw the current of carbonized blood to the lungs for oxygenation, through the pulmonary orifice, a regurgitation takes place through the tricuspid valves. This produces the tricuspid murmur, which takes the place of or increases the first sound. Tricuspid regurgitation produces a functional dilatation of the right auricle, and increases the venous engorgement,—stasis in veins below the diaphragm and a transudation of serum in the ankles. That there is no disease of the left heart in beriberi is explained by the fact that tricuspid regurgitation, being only transitory and functional, does not last long enough to have the obstruction in the systemic circulation result in disease of the left heart,

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<sup>1</sup> Poisoned by carbon operating through the capillaries on the peripheral filaments.



following that of the right. Moreover, any condition of the lungs which produces dilatation of the right ventricle will also lead to tricuspid regurgitation. In beriberi, and in the beriberi season, such condition does exist in the overloaded carbonic air, in the deficient inspiratory effort, and in the œdema of the lung itself. The rarity or absence of a diastolic murmur (I for my part never heard it) is due to the absence of disease in the aortic semilunar valves. There is never mitral regurgitation. In the acute pernicious or asphyxic form of beriberi (that is, in *shoshin*) we have circumscribed myocarditis. Here we have a condition of muscular fibres very analogous to the uterine fibres in pregnancy. In this type of beriberi we have violent cardiac palpitation, feeble pulse, syncope on the least provocation, restlessness, urgent dyspnœa, anxious cyanosed face, and final heart-failure.

The series of suggestions of feebly aerated blood and nerves paralyzed by carbonic poison<sup>1</sup> is crowned by the final picture of the *lethalis exitus*, thus given by Hoffman<sup>2</sup>: "Severe asthma appears simultaneously; anguish and palpitations attain a high degree. The carotids begin to pulsate visibly, or the palpitations, visible already before, become stronger, the skin takes a distinct cyanotic coloration, the abdomen is swollen and hard. The voice seems changed, as if it came from a full mouth; speaking is impeded, the words are indistinctly, weakly, and brokenly uttered. Fine bladdered rattles are now often perceived by the auscultation of the lung, sometimes also small quantities of serous, foamy sputum are evacuated. Presently a burning thirst appears, but the violent increase of the asthma, which occurs at every effort at swallowing, prevents the quenching of the thirst, and makes eating and masticating almost impossible. In from one to two hours, often much more quickly, these symptoms reach already a considerable degree. The patients, with their pale or already cyanotic faces bloated and decomposed by the anguish caused by asthma, lie on their backs with elevated upper body; they cannot bear to lie on the left side, as in that position anguish and palpitations are heightened to the last degree. Lying on the right side is already painful in most cases. They breathe continually with an immense effort with wide-distended nostrils, and often with the mouth violently wrenched open, and exercising all the muscles which can be used in respiration. Sometimes they toss restlessly on their couch, grasp convulsively at their throat and breast, attempt to get into a sitting or erect position, but, giving up the attempt in despair, sink back helplessly. Meanwhile there occurs in all cases, without exception, vomiting of a slimy watery liquid, which, as a rule, is repeated once or twice, and finally becomes constant just before death, and is generally mixed with a large quantity of bile. Simultaneously with the attack, usually, and in a small degree

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<sup>1</sup> The absence of reflexes is observed in such an immense number of kakké patients that it must be considered as a most important diagnostic symptom. Only in the beginning of the disease we observe normal or even temporarily increased reflexes (Baelz).

<sup>2</sup> Loc. cit.

even before it occurs, the arteries become narrower, the pulse smaller, with rapid acceleration in the further course. In consequence the skin of the extremities is cyanotic and cool, while the violent exertions in breathing are constantly increasing. The face and throat are spasmodically contracted; also spasmodic motions of the extremities are usually observed. Then follow, with violent exertion after long, irregular intervals, some ineffectual breathings, which finally cease entirely with one long expiration, while abundant foam issues from the mouth. From the sudden appearance of the œdema to the death by suffocation several days may pass, but usually the course is more rapid, being in some cases reduced to less than one-half day. In many cases there is no death by suffocation, but more or less time before it might be expected the function of the heart ceases. In such cases the palpitations occupy the most prominent part in the disease picture, and increase, with simultaneous dyspnœa, in such a manner that the apex of the heart sometimes meets the finger like a hammer beating against the inner wall of the chest, and that the anterior wall of the thorax and abdomen are shaken to a considerable extent. The feeling of anguish which possesses the patient is here also excessive, the external signs of unrest still stronger than in the cases just described. Finally death occurs quite suddenly simply by the stopping of the heart-beat, but usually it is preceded by vomiting."

"In the most rapid cases only a few minutes pass between the appearance of the palpitations and death, but usually there is an interval of several hours, and, when there is a temporary suspension of the palpitations, even more."

"A modification of the death through paralysis of the heart may occur, as the writer has recently observed in one case, through abundant hydropic effusions into the pericardium and the left pleural cavity. In that case the symptoms preceding death are again those of the above mentioned cases,—severe asthma, fear of suffocation, palpitations, etc. It takes place, therefore, slower and with a short agony, in which symptoms of suffocation are combined with symptoms of insufficient exertion of the heart. Among the causes, still obscure, of death in kakké climatic influences are especially to be considered, for the deaths occur mostly on hot, sultry days, with rain or covered sky, and very damp air; the severe symptoms begin on such days. The anæsthesiæ do not seem to have any significance for the question of fatal termination, unless, perhaps, they exercise a yet unknown deleterious influence on the innervation of the heart. Great bodily exertions may be a cause of death for one affected with severe kakké, as could be shown in the case of a young man, still weakened by a former attack of kakké and partly paralyzed. In this case a great change for the worse in his then quite moderate symptoms took place after a very fatiguing trip; and when, on the strength of a little amendment, the same trip was repeated after an interval of a few days, the severe threatening symptoms occurred at once, and two days later death ensued with the symptoms of cardiac paralysis."



*ASIATIC CHOLERA; ITS CAUSE AND ITS PREVENTION.*

BY FREDERICK GAERTNER, A.M., M.D.,

Pittsburg, Pa.

OF all topics now engaging the attention of the American medical fraternity that of cholera is the most prominent, not only because of the imminent peril which now threatens the nation but also because of the comparative mystery of that dread disease. It was not until 1817 that European physicians were called upon to cope with this merciless juggernaut. In that year a violent epidemic raged at Jessore in Bengal. Hitherto the disease, at least in its malignant form, had confined itself to Asia, and more particularly to India. After raging for some years in India it finally spread through China and westward through Persia, reaching Russia in 1823. Despite all the vigorous sanitary measures which were resorted to, it made its way into Northern and Central Europe, and in January, 1832, reached London. The second great epidemic, in 1841, after ravaging Europe, passed over to America, and is still a vivid recollection to many living inhabitants.

Cholera appears in two distinct forms, known under the general terms of simple (cholera morbus) and malignant (cholera Asiatica). The former is of frequent occurrence in summer and autumn in all countries, and need not be discussed here. Asiatic, Indian, algid, epidemic, and malignant cholera are all identical. It was during the summer of 1883 that Professor Koch was placed at the head of the German Cholera Commission and sent into Egypt and India, where he first unmasked that dread and mysterious enemy, the comma bacillus, commonly called the "cholera germ" (see Fig. 1). For this great feat he received the highest reward ever bestowed upon a physician, namely, an honorarium of one hundred thousand marks, and, upon his return to Berlin, the German government acknowledged his deserts by conferring upon him the rank of privy counsellor, and the rectorship of the Imperial Institute, of the Kaiser Wilhelm's University of Berlin.

Cholera is a specific disease, a pathological condition in which the stomach and bowels are in a state of virulent infectious inflammation. It is accompanied by vomiting and purging. The symptoms are usually divided into three stages, but these do not always appear in form sufficiently distinct to be readily recognized. The premonitory stage is an attack of diarrhoea, sometimes mild and painless. This symptom usually appears after the patient has partaken of some improper diet. Vomiting generally follows. Both are characteristic in color and odor. The stage of collapse, called the algid or the asphyxial stage, is the second. In a sudden and severe attack these stages often appear simultaneously. The evacuations are of a whitish, whey-like nature and contain disintegrated epithelium from the mucous membrane of the intestines. Severe pain and intense



FIG. 1.—Comma bacilli, magnified 600 times.



FIG. 2.—Test-tube of pure culture of cholera germs.



FIG. 3.—Test-tube of culture of comma bacilli.





thirst now set in, and after this stage symptoms develop rapidly, namely, cramps in the stomach, abdomen, and finally in the entire muscular system, especially in the lower extremities. This condition is caused by insufficient circulation of blood in the extremities, the virulent inflammatory process at work in the small intestine naturally causing a thickening and stagnation of the blood in the veins, and especially within the heart. The skin assumes a purplish hue and becomes dry while the surface of the body grows cold, indicating an intense drain upon the fluids of the body. Death may ensue at any time from two to thirty-six hours, a fatal case seldom being prolonged beyond that time.

If reaction takes place it constitutes the third stage of the disease. This reaction is a gradual cessation of the symptoms of the second stage, and, although the situation is still precarious, there is now hope of a favorable termination.

These comma bacilli are represented in Fig. 1, magnified six hundred times under the microscope. They are taken from a person who had just died of Asiatic cholera, whom I had the opportunity to observe while treating several cases during my sojourn in Strasburg, Alsace, and Paris in 1883. Here I made a thorough scientific post-mortem examination, including a chemical and microscopical examination of the excreta and secreta, and thus learned to realize the dangerous and fatal character of Asiatic cholera. These comma bacilli are highly infectious and extremely powerful. They are generally found in filth of any kind and especially in impure water. When favored by the presence of heat and moisture they develop with wonderful rapidity. Cholera is communicated by means of this specific germ, and can only be engrafted into the system by introducing the said germ into the stomach or intestinal tract through the mouth. Thus the germ may be conveyed into the system by food or drink, but can never be introduced by the air. Neither can the disease be contracted by contact with a patient suffering with the same, not by sleeping in the same room or even in the same bed. Professor Koch and other learned bacteriologists have already positively demonstrated that these comma bacilli or germs must be introduced into the human system either through the alimentary canal or per rectum and there first develop this highly infectious inflammation of the entire intestinal and alimentary canal, particularly of the small intestine, the ileum, and the cæcum.

After opening the body of one who has just died from Asiatic cholera the following pathological conditions are generally found. The entire serous surface of the small intestine is of a dark, rosy-red color. The intestine is not filled with gas, but contains a large, sometimes an enormous quantity of yellowish-white fluid, holding in suspension small white flakes, hence presenting a heavy, sodden appearance. The small intestine is highly œdematous, moderately congested, and contains ecchymoses. The congestion and extravasations are most marked in the lower part of the ileum and are not usually present in either the large intestine or the stomach. The solitary



follicles and Peyer's patches are as a rule considerably swollen and are grayish in color. The mesenteric lymphatic glands are also moderately enlarged and the mucous membrane is coated with tenacious mucus. By further scientific microscopical examinations there are found marked inflammatory changes in the intestinal coat (that is, in the submucosa and muscular coat), an increased number of lymphoid cells in these tissues, and an accumulation of wandering cells (white blood-corpuscles) in the subserous tissue. The upper part of the glands of Lieberkühn are devoid of epithelium and are filled with mucus. The epithelial cells lining the intestinal mucous membrane are extensively desquamated and are generally found in the intestinal contents, especially in the excreta.

The prevailing opinion is that this desquamation of the epithelium occurs during life and constitutes a lesion characteristic of the disease (cholera Asiatica), together with the "rice-water" discharge, which consists of the serum of the blood, containing in solution sodium chloride, ammonium carbonate, mucus, granular matter, pus-cells, comma bacilli, and albumin. Those symptoms in a milder form are termed by the French "cholerine."

There is no doubt that the only means of preventing the spread of a contagious or infectious disease is by the complete isolation of the victim and the prevention of any contact whatsoever with any article that may contain the germ. By this I mean an effective quarantine. All travellers, baggage, animals, etc., coming from an infected port or other locality, should be quarantined for a period of sixty to ninety days. The condition of persons and animals should be most carefully observed, and all suspected articles should be examined by an experienced microscopist or bacteriologist until it may be positively ascertained whether or not the comma bacilli still exist upon it. All precautionary sanitary and protective measures should be scrupulously applied, and all examinations of excreta and secreta be continued until not a single comma bacillus has been discovered for eight or ten days. Then and then only can we be assured that cholera has been excluded and an epidemic avoided. Let all the strictest sanitary measures be employed and quarantine established at every sea-port, State line, or even at the city limits; let all the travelling public be closely examined and all effects subjected to a careful process of cleansing, fumigation, and disinfection. Let the dead be cremated and all the articles that have in any way come in contact with the disease be burned.

All luggage, including the mails, should be exposed to an intense degree of heat, say 220° F., for two or three hours' duration, and then to extreme cold, say zero, F., for a period of time from six to twelve hours. If these means are employed it will be impossible for any germ or micro-organism to exist or be in a state for active development of the disease. Thus and thus only can we protect our people from the awful slaughter which this dread disease would certainly effect were it to gain an entrance into America, and which we might anticipate in the very near future unless strict sanitary and preventive measures are adopted.

## CLINICAL LECTURES.

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### *VIBRATORY MEDICATION; THE APPLICATION OF RAPID AND CONTINUOUS VIBRATIONS TO THE TREATMENT OF SOME DISEASES OF THE NERVOUS SYSTEM.*

BY PROFESSOR J. M. CHARCOT,

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GENTLEMEN,—The first attempts to employ the method of which I speak to you to-day were made by M. Vigouroux, in 1878; but the attention of the medical world had been called to it more than ten years ago. At first the effect of mechanical vibration was tried on patients who had hysteria. A very large tuning-fork was mounted on a sounding-box and set in motion by a bow. This system gave Dr. Vigouroux good results in hemianæsthesia, and caused a certain class of contractions to relax. In a case of locomotor ataxia he succeeded in relieving the pains by placing his patient's legs in the sounding-box. In fact, a number of experiments, repeated at different times, showed that the vibrations of a large tuning-fork have exactly the same physiological action as the magnet and static electricity.

Notwithstanding that Shiffe came to this conclusion also by physiological research the following year, no attention was given to this matter up to 1880, when Dr. Boudet (of Paris) took up the subject and obtained some important results. This electrician studied the vibrations and their local action. He used a large tuning-fork worked by electricity. To that part of the machine where the vibrations were most intense he attached a disc, which was applied to that portion of the patient's body which he wished to submit to the action of the vibrations.

He found that when this was applied on any part of a healthy human body it produced a local anæsthesia that lasted from eight to ten or even twenty minutes. The effect was more promptly and completely shown, first, when it was used near sensitive nerve-fibres, and, second, when the skin was thin. The maximum was obtained about the face, forehead, and gums. This led to using it in neuralgias and migraines.<sup>1</sup> Dr. Boudet said,

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<sup>1</sup> *Vide* Boudet, *Treatment of Pain by Mechanical Vibration*, Paris, 1881.



"When this instrument is applied on the face, the head vibrates and the patient feels a sort of vertigo, and soon becomes sleepy."

Dr. Jennings (an English physician living in Paris) at this time declared that Dr. Mortimer-Granville, of London, had been treating pain in the same way for four years, and had invented an instrument for the purpose. Dr. Mortimer-Granville published in 1883<sup>1</sup> an article in the *Lancet* first, and a pamphlet afterwards. His system, like that of Baudet's, was a machine to act locally, called "clock-work percussor." It was like some of the electric bells in its mechanism. The results were good in neuralgia, and, above all, in neurasthenia of a cerebral or spinal form.

I wished, first of all, in speaking of vibratory medication, to mention these author's works. For many years I have learned from patients who were attacked by paralysis agitans, or Parkinson's disease, that they felt much better after long trips by rail or by carriage. During these journeys they got rid of those painful sensations they had at home, and this improvement persisted for some time afterwards. Therefore I have constantly told my students that it was possible that some good could be obtained in Parkinson's disease by movements similar to those of a moving wagon or a train.

Dr. Jégu then offered to construct an apparatus to carry out these ideas, and, aided by M. Solignac, an engineer, he made an arm-chair which has a special mechanism which causes it to oscillate rapidly in both its anterior and lateral axes. These combined and varied movements produce a trepidation or trembling that is similar to that felt in a running wagon. Dr. Jégu made some trials with this chair, and I am sorry to say he died shortly afterwards. I then asked one of my former *chefs de clinique*, Dr. Gilles de la Tourette, to take up these experiments, and up to now we have tried eight cases,—six men and two women. Without making any attempt to analyze the very satisfactory results obtained, we will describe them: An amelioration takes place after the fifth or sixth sitting. It is mostly of use for the painful sensations in paralysis agitans. As soon as the patient gets off the "trembling arm-chair" he feels lighter, and the stiffness is gone. He can walk much better, and he is able to sleep at night.<sup>2</sup> This last is the most important improvement. Except in one case the trembling of the patient was not changed. This improved state is always felt the same day of the treatment, so that it should be repeated every day; but in this hospital the chair is put in motion by our electric motor, which we use three times a week for our static machines, and, indeed, even on three days a week we have not been able to give more than a quarter of an hour to each patient. This should be increased and given daily, for the results are important in this malady, where you know we have so far not been able to find anything to give relief.

<sup>1</sup> Nerve-Vibration and Excitation as Agents in the Treatment of Functional Disorder and Organic Disease. By Dr. Mortimer-Granville. London, Churchill & Co.

<sup>2</sup> The translator has a case of this disease that derives much benefit by the use of an American rocking-chair.—DR. T. LINN.

My former *chef de clinique* has not contented himself with the "trembling chair" in Parkinson's disease only, but has sought to find other applications for vibration. Struck by the results obtained by Mortimer-Granville and Boudet, and having remarked that Dr. Boudet said that the local vibrations on the face were transmitted to the cranium and vibrated the brain, he had an apparatus constructed by MM. Larat and Gautier, which is destined to give intense vibrations to the cranium. This apparatus is a sort of helmet with separated blades, that looks like the "conformator" used by hatters to get the shape of the head for hats. By a simple device this goes over any head. It has a plate on top on which is placed a small electric motor, moved with an ordinary battery. This gives six hundred revolutions a minute, works easily and regularly, producing a uniform vibration which is transmitted to the cranium. The whole head vibrates under it, as you can see by placing a hand on the mastoid region. When the apparatus is in motion you hear a soft humming noise, which should be taken into account in studying the results obtained by it. The number and extent of the vibrations can be regulated.

This "vibrating helmet," put on the head of a healthy subject, is well tolerated, and does not cause any annoyance. In seven or eight minutes a sensation of numbness is experienced all over the body, and the person becomes sleepy. Given for ten minutes at six P.M., a night of calm sleep will follow. Eight or ten sittings cure insomnia when it is not associated with any organic brain disease. In three cases it was found very efficacious in sick headache (migraine). Three persons having neurasthenia were treated; two were cured, while the third did not continue the treatment, although improved. This form of vibration acts in neurasthenia by taking away, first, the cephalic symptoms, vertigo, and the painful frontal constriction which is so characteristic of this affection. What seems to show that these vibrations have a particular action on the brain is that in one case, where the spinal symptoms were predominant, the usual weakness of the inferior members and the sexual impotence disappeared without having to make any vibrations down the spinal column. Static electricity had failed in this patient. It cannot, therefore, be any longer doubtful to you that vibrations of this nature are a powerful sedative to the nervous system.

It has been known for a long time by neurologists who have tried trans-cerebral currents in alienation that such rapid vibrations through the brain do good. So this led to the application of the method to a case of melancholic depression, and very favorable results were obtained.

I shall not make any very definite statements at present on this matter, as a number of experiments must yet be made, but I wished to speak about it to show you the possibilities which open up before vibratory medication.



*SENN'S GREAT SURGICAL CLINICS AT THE RUSH  
MEDICAL COLLEGE, CHICAGO.*

BY G. WILEY BROOME, M.D.,

Professor of the Principles of Surgery and Clinical Surgery, Woman's Medical College, St. Louis.

I RECENTLY had the good fortune to witness one of Professor Senn's clinics at the Rush Medical College, Chicago. On this occasion I was able to observe with great pleasure and profit a little of the brilliant work of that master surgeon.

About thirty cases were exhibited and dressed, and the most notable fact presented was that not a single drop of pus was apparent in any of them, or in fact in any others that I saw during the day spent with him, which, as usual, was a very busy one. I chanced to be present at the first dressing after operation, and the conditions for which surgical interference had been instituted embraced the widest possible range of cases.

The first case presented was a circular craniotomy, with aspiration of the right lateral ventricle, followed by the injection of a one-per-cent. solution of iodine into the ventricle aspirated. This case was operated on one week before; the wound was now perfectly dry and firmly healed,—the boy, in his own language, declaring to those present that he felt “lots better,” and “that great weight had been removed from his brain.”

The next case was one on which he had performed Richet's operation of ignipuncture of the tibia for a collection of tubercular pus in the cancellated tissue of the head of the bone. The patient had suffered for many years the greatest agony; now, three days after the operation, he expressed complete relief. Ignipuncture was made for the purpose of destroying the tubercular suppurative disease and establishing instead a plastic osteomyelitis, and at the same time exciting an active process of phagocytosis.

Another case was one of tuberculosis of the skull with perforating osteomyelitis. The tubercular implication had been carefully and thoroughly removed; there still remained an enormous wound exposing the pulsating dura over an extensive area, but, like all the cases, it presented a perfectly healthy granulating surface.

Another case was a young man, aged twenty-eight, whose right os calcis had been thoroughly curetted (leaving only the cortical shell) for tuberculosis, and packed with decalcified bone-chips and iodoform after Pagnodick's incision. The patient was now completely relieved of the suffering endured for many years, which he himself described as a boring, twisting pain; the wound had firmly and perfectly healed.

Also a case of excision of the right parotid gland, including division

of the facial nerve, and removal of a chain of implicated lymph-glands for carcinoma; the wound presented a healthy granulating surface entirely free from pus. In this case, while dissecting out the cervical glands which the cancer-cell had invaded with glandular degeneration, it was found necessary to include ligation of the external carotid artery; this complication rendered the surgical wound a very extensive affair.

In a case of "recurring carcinoma," the soft parts of the chin and neck together with the inferior maxillary bone and floor of the mouth had been removed, and the immense surface exposed covered by a loose single graft (after Wolf) taken from the chest and deftly carried into position. This case was progressing beautifully. There still remained the anchor suture of the tongue, and the tension sutures over the centre of the patient's breast from which the graft had been cut; but not a particle of pus was to be seen about the extensive surgical wound. This case well illustrates the brilliant results consequent upon the observance of minute details and antiseptic precautions carried out under the personal supervision of the operator.

This operation necessarily consumed considerable time, and was performed without an anæsthetic. A few moments before the operation commenced, Dr. Senn mentioned that one-sixth of a grain of morphine had been administered hypodermically immediately following a drink of four ounces of whiskey; and just preceding the first incision the patient was allowed three or four whiffs of chloroform; the operation was performed and concluded without the patient evincing any evidences of pain, and on the third day after the operation, bowed and laughed before the clinic in acknowledgment of the praise of his heroism.

One case, in which Cardon's trans-condyloid amputation of the knee was made one week before, was seen to be, like all others, perfectly free of infection, although several fistulous tracks leading down to two zones of necrotic tissue had previously existed. In consequence of the patient's condition this operation was preferred and explanations therefor were given. Reasons were also given why neither parenchymatous injection nor a typical resection was attempted.

Professor Senn's perfect command of anatomy, physiology, and pathology, imparting penetration to his discerning eye and acumen to his judgment, endow him with marvellous rapidity and correctness of judgment. These qualities were strikingly exhibited in my presence in a case there presented for the first time. It was the case of a young married woman, whose husband was at the time in the last stages of pulmonary phthisis. She was admitted to St. Joseph's Hospital with a diagnosis of "psoas abscess or hip-disease." The more evident signs presented were indeed those of pus within the capsule of the hip-joint. Dr. Senn very quickly arrived at a different conclusion. "Upon the word" he at once thrust a trocar into the swelling on the anterior aspect of the thigh, and there immediately welled up and out of the canula about four ounces of pus. (This, upon examination, proved



to be characteristic of the tubercular variety, a thin fluid of a peculiar white or chalk-like color, containing fragments of sloughs of connective tissue.) The professor's reasoning adopted the theory of migration; the purulent deposit in the pelvic cavity was the result and product of tubercular bacilli in the seminal fluid first deposited in the vagina during the act of cohabitation with her husband; thence they had progressed into and along the uterus, and through the Fallopian tube into the broad ligament, and thus extended to the sheath of the psoas muscle. After a thorough drainage and flushing of the pus cavity with boric solution, forty-eight grains of iodoform in one ounce of pure glycerin were injected through the canula still *in situ*. At the completion of the manipulation, Dr. Senn expressed the opinion that after one or two repetitions of a similar character, there would result entire arrest of pus formation, and that the woman would completely recover without further surgical interference.

This brief and necessarily defective description of cases will serve to show the wonderfully good results obtained at this clinic under pure surgical cleanliness. The field of operation in each case is first thoroughly cleansed and the parts carefully protected by means of antiseptic compresses before the patient is placed upon the operating table; then another brushing with sterilized water and potash soap is practised; after which the same surface is drenched with a sublimate solution followed by a thorough washing with pure alcohol. Dr. Senn purifies his hands and arms in much the same manner; the assistants are likewise required to come before him scrupulously sterilized. His own son, a very intelligent, painstaking young man, takes entire charge of the instruments.

A striking feature of the precautionary means against infection adopted and enforced at his clinic is in the thorough process of purifying the field of operation, instruments, sutures, materials, sponges, gauzes, etc., employed: the instruments are placed in a tray containing water and washing soda. This tray is placed over a gas jet, and the water kept boiling for fifteen minutes. The silk for suturing and ligaturing together with the gauze are placed in an Arnold's sterilizer and then thoroughly steamed. Schorse, of Milwaukee, prepares the catgut used, and the iodoform gauze is prepared at the Presbyterian Hospital under Senn's immediate personal supervision. It may therefore be said that the exceedingly gratifying results and unparalleled success of the surgical operations at the Rush Medical College are due to the scrupulous attention to thorough surgical cleanliness.

The effect of that persevering attention to details of antiparasitic methods was happily illustrated in a patient who had come to the hospital with a compound comminuted fracture of the metatarsal bone of the great toe. Senn removed the entire metatarsal bone, and, after purifying the wound, replaced the single flap which had been torn off by the same violent force that crushed the bone. This flap was neatly and carefully sutured *in situ*, although its ability to survive was involved in very great doubt.

The instructive lesson to be derived from this case was this: The pa-

tient's occupation previous to entering the hospital was that of a mechanic. His clothing being greasy and much soiled, his socks and feet were very dirty. A part of the sock had been forced into the open wound by the same force that inflicted the injury to the foot. This was the condition in which the patient was brought to Dr. Senn. After the usual thorough cleansing process the injury was treated in the manner briefly described. It was at the first redressing of the foot that I chanced to see the case, and upon the exposure of the wound, I found that a most beautiful illustration of "aseptic necrosis" was presented.

The flap, unable to survive the crush it had sustained, was dead, but perfectly aseptic: no suppuration nor a drop of pus in or about the wound. Indeed, instead of this condition, the normal regeneration of the destroyed tissues was well under way, at the time of the first dressing, notwithstanding the previous conditions were wholly inimical to the results thus secured. A wonderful triumph for modern surgery these cases must prove themselves to be. A consideration of the simple facts that success depends upon the painstaking cleanliness of the surgeon, and that surgery will fail by any inattention to the rules of cleanliness, besides entailing great suffering and often death, renders the situation of the operator an exceedingly responsible one.

Senn displays great thoroughness in *all* his surgical work, and most of his wonderful success must be ascribed to this essential quality of good surgery. I was informed at St Joseph's Hospital, Chicago, where he does nearly all the operative work, that it is the rarest thing to ever see suppuration follow in one of his operative wounds, and that *stitch abscess never occurs* at that institution. I was led to believe that the so-called staphylococcus albus was without a local habitation or a name among the patients there.

His general rules for drainage are very simple, yet they fully meet the indications in most cases: in pus cases he uses a tubular drain; for the abdomen the tubular drain is of glass; for other parts of the body, rubber or bone.

In cases where oozing is liable to follow extensive surface operations, as in the region of the mammæ, in the axilla, neck, and jaw, he uses gauze drainage; to relieve tension, catgut. In all cases of free pus within the abdomen, from whatever source or of whatever quantity, he irrigates, and does it thoroughly; not in the ordinary way by means of a pitcher, or by a weak stream of water from the ordinary hanging vessel, but by means of a rubber hose, the lumen of which is from one and a half to two inches in diameter, and the irrigating fluid is forced through this hose and into the patient's abdomen in a strong stream. The patient at intervals is turned upon the side to allow the free escape of the irrigating fluid. In all cases, however, free from pus, irrigation is as scrupulously avoided as it is thoroughly practised in cases requiring it; the drainage-tube is not introduced into the abdomen except in pus cases.



Dr. Senn is thoroughly in accord with Metschnikoff's attractive theory of phagocytosis, and his clinical lectures are full of convincing facts and arguments in its favor.

Though in every phase of surgical activity Professor Senn evinces the distinctive factors of the accomplished surgeon, "*facile princeps æqualium*," perhaps in his clinics he appears in his most imposing and felicitous attitudes. To his magnificent, genial presence and impressive composure nature has added a ready and distinct articulation, which in combination impart an authoritative emphasis and conviction to his speech. His descriptions of morphological changes, functional derangement, or of surgical technique are always characterized by terseness of expression, and are of marvellous significance. While in simple language enforcing the most scrupulous attention to the common details of an operation, preparatory, concurrent, and subsequent, he ascends to the heights of generalities, in which regions his discourse often bristles with the scintillations of brilliant and forceful surgical aphorisms. Such being the habitual manner and method of Dr. Senn, it is not a matter of surprise that his public clinics should be attended by seven or eight hundred spectators and auditors, surgeons, physicians, and students; his great fame elevating him to a position beyond the reach of jealousy, esteemed and honored by all.

# REVIEW OF MEDICINE.

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## MEDICINE.

IN CHARGE OF JUDSON DALAND, M.D.,

Instructor in Clinical Medicine and Lecturer on Physical Diagnosis and Symptomatology in the University of Pennsylvania, Assistant Physician to the University Hospital; Physician to the Philadelphia Hospital and to the Rush Hospital for Consumptives.

ASSISTED BY

JOSEPH P. TUNIS, M.D.,

Philadelphia.

**Rupture of the Aortic Valves.** (*North American Practitioner*, April, 1892.) By Dr. Ludvig Hektoen.

The writer reports a case which illustrates excellently the origin of valvular heart-disease from the rupture of some part of the healthy valvular structures during sudden and violent physical exertion. The clinical history, as well as the post-mortem examination, shows that the healing of the rupture resulted in valvular insufficiency and all the serious consequences characteristic of disturbances in the circulatory mechanism, and this to a very marked extent. The patient, a male, aged twenty-seven, previously healthy, came under observation complaining of an ordinary "cold on the chest." Physical examination showed at once aggravated valvular heart-disease.

The young man stated that about a year previous, while acting as baggage-master on a moving train, and while engaged in the act of lifting a trunk, weighing about one hundred and twenty-five pounds, he was suddenly thrown on his back by the train swinging around the curve at the rate of twenty miles an hour. He fell supine on the floor of the car, dropping the trunk he had in his arms. While falling he exerted involuntarily every muscle in his body to prevent the fall, and at the same time he experienced a very painful sensation in the region of the heart, just as if he had been stabbed, and he claims, moreover, that he heard something snap in his chest. The pain continued for three or four minutes, but he kept on working steadily and noticed nothing wrong for three or four days, until his attention was called to a rustling noise from the region of the heart and occurring simultaneously with the beats of that organ. He grew gradually worse, was obliged to give up his work, and finally died from advanced cardiac disease.

Post-mortem examination showed that the right posterior leaflet of the aortic valve had been torn loose from its attachment, resulting at once in insufficiency. This insufficiency had become permanent when the torn surfaces simply healed over without any union taking place between corresponding structures in apposition. At the same moment there must have



been a tearing loose of the three points of joint attachment of the aortic valves to the vessel, and healing resulted in the formation of extensive cicatricial areas along the lines of rupture, the valves becoming re-attached, as it were, nearer the ventricle than before. Chronic endarteritis could not possibly have produced the lesions which were found, and, moreover, there was no evidence of any degeneration of any kind in the valvular structures that would have predisposed to their rupture.

Scarlet Fever treated with Antifebrin. (*Medical Record*, New York, October 22, 1892, page 481.) By Dr. Harriet E. Garrison.

For more than two years the author has treated all her cases of scarlatina with this drug and has been fully satisfied with the results obtained. She believes that antifebrin relieves the disagreeable symptoms, alleviates the pain and restlessness, and makes the patient feel comfortable. It also shortens the duration of the disease. Her sixteen cases were all out of doors in two weeks, and the majority in ten days after the beginning of the fever. The drug also prevents sequelæ. No case of nephritis occurred among the little patients so treated. The drug acts best when combined with sodium bicarbonate.

It is best to begin the treatment as early as possible, but the drug will also be of benefit later on. The first dose, if sufficiently large, produces a feeling of rest, and the child lies quiet. The proper way of administering the drug is to drop the powder into a tea-cup, and pour in sufficient boiling water to dissolve it. The child should then take small sips of the solution as hot as possible. Where the angina is severe this solution makes a soothing application to the throat, but the drug can be administered in the form of pills of two and one-half grains each.

The quality of the pulse frequently improves after the administration of antifebrin. Even where there is no lowering of temperature there is an increase of the volume of the blood and lowering of the pulse-rate. This action may be attributed to the effect of the drug upon the nervous system. Whether the beneficial results are due wholly to its antipyretic and sedative action, or whether there is some specific action on the scarlet-fever poison, it is as yet impossible to say.

Embolism of the Left Coronary Artery; Sudden Death. (*Medical News*, August 20, 1892.) By Dr. Ludvig Hektoen.

Careful post-mortem examination of a patient thirty-two years old showed that the cause of death was evidently embolism of the left coronary artery. There was anæmia of almost the entire left half of the heart, and during life the collateral circulation could not be established. The embolism arose from a thrombus in the aorta, from which fibrinous masses might at any time have been washed away with the blood-current. The thrombus formed upon a rough spot due to the degeneration and loss of substance incident to the extensive chronic endarteritis that was present in the com-

mencement of the aorta. There was evidence also of other emboli having lodged in branches of the right renal artery, from the same source.

The fibrous myocarditis must have resulted from the chronic disease of the coronary arteries, which, gradually reducing the nourishment of small areas of the heart-muscle, finally caused a complete degeneration of these spots and connective-tissue substitution. This case illustrates forcibly the truth of the statement "that a man is only as old as his arteries." Had there been no atheromatous patches in his aorta, the thrombosis and secondary embolism need not have resulted. No definite idea could be formed as to the etiology of the endarteritis.

The writer believes that this blocking of the coronary arteries is one of the most common causes of sudden death, and therefore, in all suspicious cases where a post-mortem examination can be made the coronary arteries should invariably be thoroughly and systematically examined.

## THERAPEUTICS.

IN CHARGE OF ALEXANDER D. BLACKADER, B.A., M.D.,  
Professor of Therapeutics, McGill University, Montreal, Canada.

**Salophen in Acute Rheumatism.** (*N. Y. Medical Journal*, July 30, 1892.) By Dr. Wm. H. Flint.—In this paper the writer gives the results of his experience with this drug in the wards of the Presbyterian Hospital. He concludes that we possess in salophen a remedy equally potent as the other salicylates to control the symptoms of acute rheumatic arthritis, but devoid of their tendency to weaken the heart's action, to disturb the stomach, and to produce albuminuria and smoky urine. In chronic rheumatic arthritis the results, with one or two exceptions, have been unsatisfactory.

**Bilious Headache and its Treatment by Massage.** (*Therapeutic Gazette*, September, 1892.) By Dr. A. Symons Eccles.

In a paper read before the last meeting of the British Medical Association, the author stated that, after careful observation of thirty-two cases, he had come to the conclusion that bilious headache was not of central origin, but was induced either by irritation of the vagus ends in the stomach, by a toxic substance formed as the result of imperfect digestion, or by absorption of an alkaloid whose action on the nervous system is allied to that ascribed to chlorine. During the paroxysm Dr. Eccles observed dilatation of the stomach, and absence of peristalsis in the stomach and intestines. The treatment suggested was (1) dietetic, to avoid giving the stomach and liver more work than is absolutely necessary; (2) rest in the recumbent posture, to avoid overtaxing the nervous system; (3) massage of the abdomen, to favor circulation through the liver and gastro-intestinal tract, to



mechanically propel their contents onward, and to increase the muscular action of these organs, at the same time improving their secretory power; and (4) general massage, to aid the nutrition generally of the tissues, and induce rapid interchange between the tissues, blood, and lymphatics.

**The Influence of some Sodium Salts upon the Secretion and Alkaline Reaction of Bile.** (*Inaug. Diss., Dorpat, 1892.*) By Dr. D. Glass.—The bicarbonate, chlorate, sulphide of sodium, and artificial Karlsbad salts were employed in experiments made upon a dog with complete gall fistula. He summarizes his results as follows:

1. Alkalies administered by the mouth did not appear in the bile, nor did they increase its alkalinity.
2. The relative proportion of sodium and potassium salts in the bile is a constant one.
3. No cholagogic action of the sodium salts was observed.

**The Diuretic Action of Glycose and Lactose.** (*Centralblatt für Therapie, Mai, 1892.*)—At a recent meeting of the Academy of Medicine, Rome, Vespa gave his experience on the diuretic action of glycose and lactose. He stated that in ascites dependent on hepatic cirrhosis or on nephritis very little diuretic action from either drug was observed. In exudative pleuritis and in the dropsy of valvular disease their diuretic effect was most marked. Both drugs are well borne, and, as they have no influence themselves on the heart or nervous system, they can be prescribed in combination with other remedies.

**The Therapeutic Value of Diuretin.** (*Prager Med. Wochensch., Nos. 12, 13, 1892.*) By Dr. Eugene Frank.

Dr. Frank in an interesting paper gives his experience, in the klinik of Professor von Jaksch, on the action of diuretin in thirty-four cases. The drug was administered in doses of from five to seven grammes daily in solution with peppermint-water and syrup. In a series of desperate cases of chronic nephritis an immediate diuretic effect was obtained. The quantity of urine excreted increased from six to fifteen times, œdema disappeared entirely, and the general condition of the patients improved wonderfully. He records that very good, though rapidly passing, effects were observed in cases of myocarditis and valvular disease of the heart. Combined with digitalis, it increased the excretion of urine from five hundred cubic centimetres to thirty-three hundred cubic centimetres in a case of pericarditis.

No effect was observed in cases of hepatic cirrhosis. The diuretic action appears generally on the first day of administration, and its maximum is reached by the third or seventh. Neither a cumulative nor an irritative action on the renal parenchyma was observed. Diuretin, Dr. Frank thinks, has a certain, if feeble, stimulant action on the heart. Though it is not to be compared with digitalis, yet of all known diuretics he considered it the

best, and far superior in its effect to calomel, caffen, acetate of potash, etc. He mentions, as unpleasant results of its use, in one case a slight diarrhœa, and in another vomiting. He thinks that, in combination with digitalis or other heart-tonics, it may prove serviceable in even the most severe cases.

Ruggieri (*Deutsche Med. Zeitung nach Riforma Medica*) gives his experience as to the value of diuretin in eighteen cases. He found that its diuretic effect was most marked in cardiac cases and least in nephritic, while no effect was observed in hepatic cirrhosis. He gives no information as to the dose of the drug or its probable mode of action. In his opinion the tolerance for the drug was unsatisfactory, headache, nausea, dizziness, and diarrhœa resulting from its employment in many cases.

Pental. (*Miinchener Med. Wochensch.*, No. 7, 1892.) By Dr. E. Weber. —The writer states as the result of his experience in two hundred cases; that this anæsthetic has proved very serviceable in such small operations as the extraction of teeth, incision of buboes, and opening of abscesses. From five to ten grammes is sufficient to produce a narcosis lasting two or three minutes. The stage of excitement was seldom noticeable, and no disagreeable after-effects were observed. The awakening was rapid and quiet.

Dr. A. Hägler (*Correspond.-Bl. für Schweiz. Aertze*, No. 6, 1892) reports very similarly, from his observations on forty cases where it was used. He mentions one case, a student in good health, who submitted to be anæsthetized before the class. Ninety seconds after the administration began, he became suddenly deeply cyanosed, respiration ceased, and the pulse could not be felt at the wrist. Artificial respiration was at once employed, and in two or three minutes consciousness was restored, and the student felt none the worse from his experience.

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## NEUROLOGY.

IN CHARGE OF CHARLES W. BURR, M.D.,

Pathologist to the State Asylum for the Insane, Norristown; Visiting Physician to the Home for Incurables; Visiting Physician to St. Joseph's Hospital, Philadelphia, Pa.

**The Experimental Production in Dogs of a Disease with Choreic Movements.** (Production expérimentale d'une maladie à mouvements choréiformes chez le chien. *Revue Mensuelle des Maladies de l'Enfance*, May, 1892, p. 219.) By M. Triboulet.

The author succeeded in isolating from the blood of one choreic dog out of several a micrococcus. Injection of a bouillon culture in a choreic dog was followed by death in sixteen days without modification of the movements. There was marked emaciation. Injection in a healthy young spaniel was followed by emaciation, muscular atrophy, sloughs upon the hind legs, and death in twenty-one days. Injections in a healthy adult terrier



at first had no result, but after several months there were emaciation and a certain degree of paraplegia, with rhythmical intermittent movement of the members similar to that seen in dog chorea and persisting during sleep. The author claims that this is the first time that an experimental choreiform affection has been produced by microbic injection.

**A New Consideration of Hereditary Chorea.** (*Journal of Mental and Nervous Diseases*, October, 1892, p. 765.) By Dr. R. M. Phelps.

In this paper are given brief notes of nine cases of hereditary chorea at present in various asylums for the insane throughout the country, and of five cases, three typical, under the author's own care. He points out the general similarity of the disease to general paresis. He is of opinion that it is not so rare as is commonly supposed. Heredity is probably only an extra-strong predisposing cause. The term chronic dementia is proposed.

**Three Cases of a hitherto Unclassified Affection resembling in its Grosser Aspects Obesity, but associated with Special Nervous Symptoms, Adiposis Dolorosa.** (*American Journal of the Medical Sciences*, November, 1892, p. 521.) By Dr. F. X. Dercum.

Under the above title the author reports three cases of a hitherto unobserved condition. The first case he reported in 1888. The second was described by Dr. F. P. Henry in 1890, and the third is new. The principal feature of the disease is a deposition of subcutaneous nodules of soft tissue in some one situation or perhaps in corresponding places in the upper or lower extremities. For a time the deposit is limited to the original areas, but subsequently it makes its appearance elsewhere, and may become very extensive. Regions may, however, remain permanently uninvaded. In the two cases in which fragments were removed by the trocar, fat cells and connective tissue were found, the latter at times being decidedly embryonic in type. It would seem that this is so in the more recent formations, while in the older areas a fully-formed adult fatty tissue appeared to be present. At some time or other the condition is accompanied by pain, occasionally in old areas of enlargement, and again in regions in which enlargement subsequently appears. Shooting and stabbing pains also occur. Sometimes there is decided increase in the enlargement following pain, and it becomes firm, more resistant, more nodular. There was in one case tenderness of the nerve-trunks, degenerative reaction in the thenar and hypothenar group, and the patient suffered twice from herpes zoster. Cutaneous sensibility is diminished and there are areas of complete anæsthesia. There is motor weakness. Sweating was absent or diminished in two cases and probably in the third. Headache is common. In two cases there was hæmatemesis, in one epistaxis, and in one recurrence of uterine flow many years after the menopause. Bronchitis was persistent in one case, and in two there was marked cardiac dyspnoea. In the two cases which came to post-mortem the thyroid gland was found indurated and much infiltrated by a calcareous deposit. Nothing

further of interest was found. Unfortunately the specimens were lost, and consequently no microscopic examination could be made.

The author concludes that the condition is certainly not simple obesity nor myxœdema, though there is a slight superficial resemblance to the latter. "It would seem that we have here to deal with a connective-tissue dystrophy, a fatty metamorphosis of various stages of completeness, occurring in separate regions, or at best unevenly distributed and associated with symptoms suggestive of an irregular and fugitive irritation of nerve-trunks, possibly a neuritis. That this, however, does not embrace the whole truth is evidenced by such symptoms as the diminished sweating, the headache, and the contraction of the visual fields noted in one case." The excellent illustrations accompanying the article show the enlargements very well.

**Report of a Case of Muscular Atrophy with Pathological Findings in Spinal Cord.** (*Journal of Mental and Nervous Diseases*, August, 1892, p. 620.) By Dr. W. H. Riley.

In brief the history of the above case is as follows: Slowly increasing palsy and wasting, beginning in the legs, appearing later in the arms, and finally involving the trunk muscles. Distinct fibrillary twitching. Knee-jerk absent, and no reflex from stimulation of the skin in any part of the legs. Faradic muscular irritability diminished. A. Cl. C. equalled C. Cl. C. in the peroneal muscles of the left leg. Sphincters not involved. Sensibility to touch, pain, and temperature normal; hearing, vision, taste, and smell normal. Death was caused by paralysis of the muscles of respiration. Diagnosis of progressive muscular atrophy had been made.

Post-mortem the muscles were found shrunken and atrophied. There were streaks of light tissue through them, indicating a degeneration of the muscular fibre itself. Microscopically the anterior cornua of the gray matter did not take the stain as readily as the posterior. There was a granular, broken-down appearance in the anterior horn, with the total absence of many of the motor-cells. There was also a degeneration of the anterior root-fibres, in many cases amounting to a complete absence of the fibres. Many of the fibres in the crossed pyramidal tracts seemed to be absent, and there appeared to be an increase in the supporting connective tissue. The direct or anterior pyramidal tracts were affected in a similar manner, but not so markedly. The degeneration extended out to the so-called mixed zone. The important point, then, in the case is that, although there were no symptoms of any disease in the pyramidal tracts or the upper segments of the motor path, yet there was distinct degeneration of the pyramidal tracts. The author concludes that this case indicates that the seat of lesion in *atonic muscular atrophy* is not in the motor cells and motor roots only, but includes the pyramidal tract as well.



## PEDIATRICS.

IN CHARGE OF T. M. ROTCH, M.D.,

Assistant Professor of Diseases of Children, Harvard University; Visiting Physician to the Children's Hospital, Boston.

ASSISTED BY

E. M. BUCKINGHAM, M.D.,

Instructor in Diseases of Children, Harvard University; Visiting Physician to the Children's Hospital, Boston.

Cerebral Abscess; Operation; Recovery. (*Archives of Pediatrics*, September, 1892, p. 717; *British Medical Journal*, 1892, i. 333.) By Dr. R. W. Murray, Liverpool.

A girl of five years was admitted to the children's infirmary for loss of power in the left hand, and epileptic seizures affecting the left upper extremity and left side of face. Fourteen days after a blow from a poker on the right side of the head, she had had twitching of the left arm and left side of the face, lasting half an hour. She had three attacks in the day and one on the following day. These fits always began in the left arm, which arm shook, and the fingers worked. Then the left side of the face became involved, and the eyes rolled about, but there was no convulsive movement elsewhere. She had never vomited nor complained of any pain.

A small sloughing scalp-wound was seen in the right parietal region over the Rolandic fissure. Beneath this was a punctured fracture of the skull. With this point as a centre, a disk of bone was removed with a three-quarter-inch trephine. The dura was firmly adherent and the brain-substance beneath was soft, sloughing, and not pulsating. A probe entered an abscess-cavity in the brain to a depth of two inches, and about a drachm of thick inoffensive pus escaped. The cavity was washed, a piece of brain about the size of a pea removed, and a drainage-tube inserted. The child had no more epileptic seizures and made an uninterrupted recovery. Fourteen days after the operation movements of the hand and arm were as good as ever they were.

Diuretin Knoll in Infantile Practice. (*Archives of Gynecology*, August, 1892, p. 374; *La Semaine Médicale*, February 24, 1892.)

According to the observations of Dr. R. Demme, Professor of Pediatrics at Berne, diuretin may be given in the daily dose of one-half to one and a half grammes (seven and a half to twenty-two grains) to children of from two to five years; and in daily doses of from twenty-two to forty-five grains to children of six to ten years. In infants less than a year old it is contra-indicated, as it easily provokes gastro-intestinal irritation in these young patients. Care should be taken in prescribing diuretin, as it is liable to be decomposed by certain substances. M. Demme prescribes it in solution with brandy, distilled water, and sugar. His observations have convinced him that it is a good diuretic for children, being exempt for the

most part from unpleasant results and probably acting on the renal epithelium. Under its influence the dropsy of scarlatinal nephritis disappears more quickly than by other drugs. It suppresses rapidly the serous effusions in cases of mitral disease, when compensation has been previously established by the use of digitalis.

Diuretin was generally well borne and it had no cumulative action, yet in one case of general dropsy in a child of ten, with amyloid degeneration of the liver, spleen, and kidney, he saw a morbilliform eruption with abundant diarrhoea, after injecting ninety grains in the space of four days.

**Acute Epiphysitis.** (*Archives of Pediatrics*, September, 1892, p. 716; *British Medical Journal*, 1892, i. 656.) By Dr. Edmund Owen.

An infant of ten months had acute subdeltoid abscess, which was incised, and a small opening found leading into the humerus at the surgical neck. Two small sequestra were removed. During the removal by scraping of granulation tissue in the expanded shell of the bone, the epiphysis became detached. The cavity was washed and drained, the arm fixed for separation of the epiphysis, and the patient recovered with a movable joint and a sound limb, showing the advantage of early exploration.

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## SURGERY.

IN CHARGE OF B. FARQUHAR CURTIS, M.D.,

Surgeon to St. Luke's Hospital and to the New York Cancer Hospital.

**The Treatment of Fractures of the Lower End of the Humerus, and of the Base of the Radius.** (*Annals of Surgery*, July, 1892, p. 1.) By John B. Roberts, A.M., M.D.

Roberts has made a sort of collective investigation of the practice of some ninety American surgeons in the treatment of fracture of the lower ends of the humerus and radius, and finds considerable diversity in their methods. Quite a number agree with him in treating fractures of the lower end of the humerus with the elbow in an extended position, but the majority hold to the flexed position, for various reasons, such as a fear of ankylosis, or better retention of fragments. Roberts advocates the extended position in all cases because of the danger of losing the "carrying-point" otherwise. The majority also use early passive motion within four weeks, and nearly all expect to obtain "good use of the joint." About one-tenth of the number (nine out of eighty-eight surgeons) treat fractures of the lower end of the radius frequently without any form of splint whatever, agreeing with Dr. Roberts, who employs a wristlet of adhesive plaster wound around the arm according to Moore's plan. Sixty-eight out of the eighty-eight used passive motion within four weeks. Roberts believes in leaving the



elbow-joint at rest until consolidation has taken place, and encouraging patients with fracture of the lower end of the radius to use their fingers voluntarily from the first; active instead of passive motion. It is disappointing to see how many men are still trying to prevent ankylosis of the elbow by passive motion, when it is now so clear that such attempts are more likely to do harm than good, and also to find so many using apparatus on the fracture of the radius which compels them to employ passive motion here also, when active motion can be so readily maintained throughout. It appears to the reviewer that Roberts does not dwell sufficiently on the radical difference between the two parts, the wrist being a joint where motion is likely to be limited by adhesions of tendons in their sheaths, while in the elbow there is no such danger, hence for the former motion (active) is advisable from the first, but for the latter it is unnecessary.

**Serous Abscesses.** (Des abcès sereux. *Revue de Chirurgie*, 1892, p. 512.) By Dr. E. Nicaise.

By the term "serous abscess" Nicaise would designate those curious collections of serous fluid which occur especially under the periosteum (more commonly known as "albuminous periostitis") and similar collections elsewhere, in the cellular planes under the skin, for instance. He believes that they are like ordinary abscesses true inflammatory processes, due to bacterial irritation, but for some reason, either attenuation of the virus or unusual resistance of the tissues, unaccompanied by the production of leucocytes. The fluid may be pure serum or may be sticky by admixture of mucin. He regards them as analogous to the blebs often formed in the epithelial layers of the skin, a comparison, by the way, which would be happier if there were not such a great difference between the epithelial and connective tissues in many biological aspects. Their course may be acute or chronic, the latter form being claimed by some as due to an absorption or solution of the cell elements of the pus in a cold abscess, a transformation which Nicaise does not deny, but considers rarer than the serous abscess. These abscesses appear to be most common in connection with tubercular osteomyelitis.

**Tuberculous Disease of the Shoulder-Joint.** (Die Tuberculose des Schultergelenkes. *Deutsche Zeitschrift für Chirurgie*, xxxiii., Hefte 4 and 5, p. 403.) By Dr. W. V. König.

The relatively rare occurrence of tuberculous disease of the shoulder-joint has not prevented the collection of sixty cases in the Göttingen clinic, and these cases are analyzed very thoroughly by König. Three-quarters of these cases were of bony origin, and only three cases were of the "hydrops" form. The synovial membrane was attacked in a diffuse miliary form, a diffuse complete tubercular degeneration, or very rarely in a circumscribed form growing from one part only and resembling a neoplasm of some kind. Almost two-thirds of the cases of bony origin were caries sicca, that

peculiar variety of tuberculous disease which (with the exception of an occasional case observed in the hip-joint) seems to be exclusively the property of the shoulder. Twelve of the twenty-eight patients with this form of disease were between ten and twenty years of age, three younger than ten, and six over thirty. In spite of the name, the pathological process may be accompanied by the formation of pus from the beginning, or pus may develop in its later stages, although it is certainly not common. The dry granulation-tissue which destroys the head of the humerus (and also, though not so commonly, the glenoid fossa) may remove the cartilage and bone evenly from the entire joint-surface, or it may make deep worm-eaten depressions, leaving the cartilage and bone in the intervals untouched, most frequently following in such cases the course of the bicipital groove. Occasionally it may even cause an absorption of the shaft of the bone, either by direct attack or by impairing its nutrition. The other varieties of tuberculosis of bony origin resemble those found in other joints, forms with sequestra, purulent infiltration or granulations.

The only difficulty in diagnosis is in recognizing those cases of osteomyelitis of the head of the humerus which do not involve the joint itself as yet, especially as they may present fistulæ which admit a probe well up into the centre of the head of the bone.

Resection is the only reliable method of treatment, and it is often powerless to prevent recurrence no matter how faithfully all the diseased bone and joint-tissues may be removed. Noteworthy, too, is the frequent association of pulmonary phthisis with the lesion in the shoulder. The functional results appear to be fair, most of the shortenings being due to the destruction by the disease, and the weakness to atrophy of the muscles before the operation.

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## GENITO-URINARY SURGERY.

IN CHARGE OF WILLIAM K. OTIS, M.D.,  
New York.

The Treatment of so-called Impassable Urethral Stricture. (*British Medical Journal*, November 26, 1892.) By G. Buckston Browne, M.R.C.S.

This author, holding that no stricture is impassable to a properly-chosen and properly-guided instrument, has devised the following procedure, which he considers applicable to all cases of stricture no matter how close or how tortuous.

The instruments required are very simple,—some blunt-ended English gum bougies, varying in size from No. 3 to 10, a foot-rule marked in inches, a No. 11 or 12 soft gum catheter mounted on a stylet for tying in at the close of the operation, and, finally, a complete set of well-burnished steel sounds. These sounds are far preferable to silver catheters, which,



when small, easily bend, and so destroy all accuracy of manipulation. The sounds are each two sizes larger in the shaft than at the point, the smallest being No. 2 (English) in the shaft and less than No. 1 at the point (marked 0-2), the next being No. 3 in the shaft and 1 at the point (marked 1-3), and so on up to the largest, No. 17 (marked 15-17).

The night before the operation some aperient medicine should be administered, and an hour or two before the operation the patient should have a hot sitz-bath and an enema of warm water, in order thoroughly to clear the rectum. He should be directed not to pass water for at least an hour before the appointed time, for it is desirable that there should be some urine in the bladder. If an operating-table is not available, the bed should be made firm and level by placing the leaf of a table or a board under the mattress. Each leg is wrapped up separately in a small blanket, and a third blanket is placed across the body. The perineum and pubes are thus left exposed. The patient is then completely anæsthetized. The anæsthesia must be complete, for the urethral reflexes are the last to be anæsthetically abolished, and the success of the operation depends upon the patient being absolutely quiet. One or two of the blunt-ended soft bougies are now introduced into the urethra, and the exact distance of the stricture—or, in case of multiple stricture, of the anterior stricture—from the external meatus is accurately ascertained and measured. A careful attempt is now made to pass the smallest of the steel sounds or dilators through the stricture. This will probably not be possible in severe cases unless the surgeon stands on the patient's left, or sits down on the bed on that side, and guides the point of the instrument with his left forefinger in the rectum. The finger in the rectum gives great security, and by its aid the operator is able to keep the dilator correctly in the middle line, and he will at once know if his instrument passes out of the urethra and into the tissues in front of the rectum. No force must be used, but careful search must be made for the orifice of the stricture, and firm but gentle pressure exerted when it is found. Indeed, the surgeon must steal in "little by little," as Ambroise Paré says, referring to another subject, "and must not break suddenly into the field of nature." The operator will, after a little while, find the stricture yield under his hand, his instrument will advance a little, and he will be gratified and feel safe and successful if he becomes aware that the end of the sound is firmly grasped by the stricture. There must now on no account be any hurry. If the instrument is so tightly grasped that it feels almost immovable, by waiting the grasp will be felt to relax and the dilator can be pressed a little further. When fairly through the stricture, even if the sound cannot be carried into the bladder, it may be withdrawn, and the next sized one introduced; this will dilate still more, and sound after sound may be passed till No. 6 or No. 7 has been put well through the stricture.

If a No. 4 or a No. 5 is now used, it will only be lightly held by the dilated stricture and its point can be manipulated and directed carefully into the bladder. The sound is known to be in the bladder by the shaft

being absolutely in the middle line and the point being felt to be free in a cavity, for, owing to the fact that there is urine there, there is room for the play of the point in the bladder. When once a sound has been fairly passed into the bladder, and at least a No. 6 or 7 put well into the stricture, the urethrotome may be employed. Its successful introduction is not always an easy matter. Leaving the No. 7 sound lying in the urethra the operator should now change sides, and, standing on the patient's right, he takes out the sound and at once slips in the urethrotome. Dr. Browne frequently shakes it in rather than passes it. This instrument should pass with ease into the bladder. If it does not something is wrong, and the knife must not be used till the urethrotome is fairly placed. Perhaps a sound or two will have to be passed again before the straight urethrotome can be introduced without let or hinderance into the bladder. When in proper position, it is carefully withdrawn till the bulb is an inch beyond where the stricture is known to be, the blade is then protruded and a free incision is made from behind forward for a good inch in the floor of the stricture. The blade is then sheathed, and the instrument withdrawn. Full-sized sounds are then passed. (The above method of dealing with tight strictures, which, no doubt, its distinguished originator finds uniformly successful, I feel assured would often prove more difficult and at times impossible in the hands of us perhaps less skilful Americans. It seems to me, however, and I think his famous countryman, Mr. Reginald Harrison, will agree, that the point gained, viz., the avoidance of a possible permanent perineal fistula (which ought never to occur), is exceedingly small compared with the dangers from hemorrhage into the bladder or septicæmia. Above all, I wish utterly to condemn the practice in internal urethrotomy of making the incision on the floor instead of the roof of the urethra, as being dangerous, and from anatomical grounds the superior incision being much less likely to injure important structures.—W. K. O.)

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## ORTHOPÆDICS.

IN CHARGE OF REGINALD H. SAYRE, M.D.,

Assistant to the Chair of Orthopædic Surgery, Bellevue Hospital Medical College, New York.

**The Treatment of Club-Foot.** (*Medical News*, October 29, 1892.)  
By Albert H. Freiberg, M.D.

The author gives, in more elaborate detail than we have seen elsewhere in English, an account of Julius Wolff's treatment of club-foot by means of gradual rectification, with retention in position by means of plaster-of-Paris bandages. We have seen inveterate adult cases of Professor Wolff's which gave most brilliant results by means of this treatment, though they were of the class that very many surgeons would have considered only suit-



able for tarsectomy or removal of the astragalus. Wolff does not attempt to reduce the deformity in a short time by the use of great force, but prefers less violence and a greater number of sittings. The force used should never be sufficient to cause gross solutions of continuity in the tissues. What Wolff attempts to produce by his redressment is subluxation of the tarsal bones. The form of the bones is not to be changed by the operation itself, but by the change of function, by being placed in different relations with one another and with the extremity. The following is the method of applying the dressing in Wolff's clinic.

Excepting for very slight degrees of club-foot and in very young children, anæsthesia is necessary. The patient is anæsthetized, placed on his back on a table, and with a blue pencil the middle of the patella is marked. An assistant fixes the knee in such a way as not to hide the patella. The operator now seizes the anterior part of the foot with one hand, and placing his other hand upon the heel, seeks to correct the deformity by first twisting the foot outward as far as possible, pronating it, then making dorsal flexion, and finally abducting the front part by bringing the heel toward the median line of the body. Having secured the foot in its proper position, or as nearly so as can be done at one sitting without the use of too much force, the hands of the operator are replaced by those of an assistant holding the ground gained as nearly as possible. The operator then takes strips of rubber adhesive plaster one inch wide, and uses them to hold the foot in proper position. The first strip begins on the upper surface of the foot, close to its inner edge and posterior to the ball of the great toe; it is then carried across the sole, up the outer edge of the foot, and a short distance up the outer side of the leg, without making much of a spiral around it. A second strip is placed anterior to this, a third begins at the ball of the great toe, and a fourth runs along the base of the toes. A greater or less number than this may be required, according to the resistance offered. Two assistants now raise the limb from the table, one still fixing the knee securely, the other holding the foot by the toes, while the operator pads the foot and leg as evenly as possible with cotton up to the tuberosity of the tibia. With plaster of Paris bandages which are not too wide, the foot and leg are evenly covered, the toes being left exposed, with the exception of the great toe, which is almost entirely covered. The greatest care must be taken not to make the dressing too tight. As soon as the bandage has been applied the operator tries to correct the position as much as possible. The assistant with one hand pushes the heel towards the middle line, while with his other hand he pushes the other edge of the foot upward. The foot is held in position until the plaster is firmly set.

If the foot is in proper position, a sagittal plane passing from the anterior superior iliac spine, through the mark in the patella and through the centre of the ankle-joint, should strike several inches inside the top of the great toe. Two fenestra are now cut in the dressing as a matter of routine,—one just below the external malleolus, the other at the

metatarsal phalangeal articulation of the great toe. The toes must lie side by side without being squeezed.

The patient sometimes fails to sleep the first night on account of pain; usually it is not excessive. If pain is present the next day a fenestrum is cut at the painful spot.

Several days after this first dressing the plaster is cut through to the cotton in a line extending completely around the leg just below the ankle-joint, and a wedge is removed at the outer side of the ankle-joint. The leg part of the dressing is prevented from rotating on the shin by an assistant, while the operator corrects the deformity still more by moving the foot encased in the lower piece of the dressing and retaining the two parts in their new relation by means of a fresh plaster bandage. Whenever pain is complained of a fenestrum must be cut. When the foot is finally in satisfactory position, after a larger or smaller number of dressings, at intervals of two to five days, the final dressing is made, all fenestra are covered, undue thickness of plaster is cut off, strips of thin pine shaving are glued on the bottom to give strength, and held in place by crinoline bandage painted with carpenters' glue. Over all a light water-glass bandage is applied. The patient wears this for six months or a year; when removed the feet are usually in good position. If, after massage, bathing, and manipulation, the patient cannot put the sole to the ground fully, and be able to pronate the foot somewhat, he is not regarded as cured, and may have a relapse, and is therefore put in another plaster-dressing for a time. Even in bad cases the time that elapses from commencing treatment till the time patients are allowed to walk should not exceed four weeks. Easy cases can walk in one week.

**Mechanical Treatment of a Case of Torticollis by Sayre's Jury-Mast.** (*Virginia Medical Monthly*, October, 1892.) By Stuart McGuire, M.D.—The writer describes a case of congenital torticollis. The left sterno-mastoid was divided subcutaneously. Various appliances were then used to retain the head in normal position, but were unsatisfactory. The writer then tried a Sayre's jury-mast, bending it so that the line of traction was on the side opposite to the original deformity, and found that it retained the head in position easily and comfortably till the patient was able to voluntarily retain it so.

## OBSTETRICS AND GYNÆCOLOGY.

IN CHARGE OF JOHN M. KEATING, M.D., LL.D.,

Colorado Springs, Colorado; Fellow of College of Physicians of Philadelphia; Gynæcologist (Emeritus) to St. Agnes's Hospital, Philadelphia; formerly Visiting Obstetrician to the Philadelphia Hospital (Blockley); Editor "Cyclopædia of the Diseases of Children," etc.

**Relation of Pelvic Diseases and Psychological Disturbances in Women.** (*American Journal of Obstetrics*, November, 1892.) By Dr. Geo. H. Rohé.—Cases operated on were: melancholia, six cases; simple



mania, one case; puerperal mania, four cases; hysterical mania, one case; periodical mania, two cases; hystero-epilepsy, with mania, one case. These cases were all operated on in the Maryland Hospital for the Insane, and the number in which pathological lesions were found and where benefit resulted from the operation, adds much to the interest of those who are carefully examining the subject in the various so-called insane "asylums." The probability is that there are quite a number of cases in all insane hospitals in which surgical interference would bring about decided relief; but would it not also be advisable to examine into the subject of the effects of diseases of the sexual organs in men and boys? We have not the least doubt that castration for incontrollable masturbation would be justifiable and a valuable means of cure in some of our institutions.

**Extirpation of the Entire Uterus by the Suprapubic Method.** (*American Journal of Obstetrics*, November, 1892.) By Dr. W. M. Polk. —This operation was performed for fibroma, and of eighteen cases operated on in this manner there were but two deaths, together with six cases of partial hysterectomy, and eleven cases by the peritoneal method with two deaths, making a total of twenty-nine cases and four deaths.

**Thure Brandt's Method** (*Annales de Gynécologie*, October, 1892), which now receives the name of Kinesipathy, seems to be attracting a good deal of attention in France. Stapier contributes a long article for the October number of this journal. He emphasizes the importance of unalterable patience, which has to be associated with long fingers, dexterity, and *finesse* in diagnosis.

**A Plea for Early Diagnosis in the Pelvic Diseases of Women.** (*Philadelphia Polyclinic Journal*, March, 1892.) By Dr. B. F. Baer.

It is the purpose in this lecture to call attention to some of the traditional sophistries which have been handed down to us from a former generation and which have led to some serious errors in diagnosis. One of the most important of these is the so-called menopausal hemorrhage.

By a strange reasoning, which may partly be explained by the fact that it occurred in the days when phlebotomy was regarded as almost a panacea, the idea that metrorrhagia at the change of life is physiological gained a foothold in the profession, and through it was engrafted on the popular mind; and it has extended its evils to the present time, for many physicians still believe that the hemorrhage is beneficial at this period; that the blood loss is depuratory, and that it protects the vital organs from injurious or even fatal congestion. This is one of the most dangerous fallacies that was ever advanced in medicine, for there is not the slightest ground either in reason or in statistics for such an erroneous belief. If it were true, more cases of metrorrhagia ought to be met with at this period of life, or more women should suffer from serious cerebral and other internal congestions

when the bleeding does not occur. Statistics show that the mortality during the five years from forty-five to fifty is no greater than the ordinary increase for each five years of advancing age, and that it is not any higher in females than in males for the same period of life.

It should, therefore, be an axiom in gynæcology that metrorrhagia at the menopausal age, as at other periods of life, is never physiological, but always the result of local disease.

But how shall we discover the disease in its incipency?

This can never be hoped for until we, as physicians, come to regard all irregular discharges from the uterus as the result of local disease, requiring immediate intelligent investigation, and teach women to so regard them. In this matter the physician must be the educator. It is true that in many cases the disease is so far advanced before the stage of ulceration is reached, upon which the discharges of cancer usually depend, that little, except to palliate the symptoms, can be hoped for; but there are also many exceptions; some in which the disease begins as a superficial ulcer; others in which the growth partakes of the nature of a papilloma in its early stages, and in these cases much may be accomplished towards alleviating suffering and prolonging life. Then, by healing all sources from which these discharges originate, of whatever pathological character, it is possible that the soil, fertile for the development of the malignant affection, may be destroyed, and its growth prevented.

**Iodoform-Poisoning.** (*New York Journal of Gynæcology and Obstetrics.*)—Dr. Dudley, in a discussion before the New York Obstetrical Society, stated that he had had two cases of acute mania coming on after removal of ovarian tumors, both of which he attributed to iodoform-poisoning. He had packed the womb with ten-per-cent. iodoform gauze. Upon the question of mania, Dr. Wyley suggested the importance of studying the occurrence of mania following the removal of ovaries. Objection had been made to operating on a case of disease on account of a possibility of mania following. That it follows is sometimes true, but possibly not more so than would be the case from any other ordinary operation. In thirty-two cases of vaginal hysterectomies, he had only one case of insanity following, and that did not show itself for several weeks. The only other case, after a good many hundred laparotomies, came on the third or fourth day, and was due directly to the operation, and was probably a form of acute sepsis. Dr. Lusk recalled a case where he removed the uterus for carcinoma in an otherwise healthy patient, followed by good recovery. Two weeks after the operation she developed melancholia and insanity, and died six months after from a recurrence of carcinoma. Dr. Coe, in closing the discussion, agreed with Dr. Wyley in the explanation of the majority of cases. He stated that at the Cancer Hospital several cases of acute melancholia followed operations, and there seemed to be something about malignant diseases which caused an impression on the minds of patients and



predisposed to melancholia. He thought the insanity was not due to the operation, but was due to the brooding of the patients over their condition and on the possibility of its recurrence.

## OPHTHALMOLOGY AND OTOTOLOGY.

IN CHARGE OF J. E. HARPER, A.M., M.D.,  
Chicago, Illinois.

**Hyoscyamine Hydrobromate.** (*Journal of Ophthalmology, Otology, and Laryngology.*)—Dr. John L. Moffat has used a one-per-cent. aqueous solution of this drug instead of atropine in cases of refraction for nearly a year. His patients ranged from five to forty-one years of age. In two cases the patients complained of vertigo. In three cases pupillary dilatation was irregular, but in two the irregularity disappeared when the full effect was reached. In some of his cases complete paralysis of the ciliary muscle was not secured. Examinations are begun thirty minutes after the instillation. The effects disappear in from five to twelve days. The advantages claimed over atropine are its quicker action and the shorter duration of mydriasis.

**Injury to one Eye followed by Paralysis of the Muscles of the other.** (*Journal of Ophthalmology, Otology, and Laryngology.*)—Dr. C. H. Helfrich describes the case of a man of forty-three, who was struck in his right eye with the ferrule of an umbrella, lacerating the lower lid at the inner canthus. The direction of the wound was inwards and backwards. The parts were much swollen and crepitated on pressure. Slight exophthalmus was present, due to partial paralysis of all the external muscles. The ciliary muscle was not affected, fundus was normal, and  $V = \frac{20}{20}$ . Left eye showed complete paralysis of all the external muscles. There were ptosis and immobility of the ball. Pupils of both eyes were contracted.

**Sympathetic Irritation after Thirty-five Years from a Lens dislocated into the Vitreous.** (*Journal of Ophthalmology, Otology, and Laryngology.*)—Dr. G. C. McDermott reports the following. A farmer, aged forty-five, presented himself for treatment, and gave a history of having been struck in the right eye with a ball thirty-five years before. Sight became impaired immediately, and eight years later was entirely lost. No pain or inflammation occurred until a few months before examination, when the eye became inflamed and a dull pain was felt in the ball and right side of the face. This subsided, but has recurred several times since. Four months ago the left eye began to show symptoms of sympathetic irritation. Present condition: right eye blind, divergent squint, conjunctiva

congested, pupil dilated, tenderness in ciliary region, anterior chamber shallow, tension + 2. At the lower part of the pupillary space the margin of the dislocated lens could be seen. The eye was enucleated. The lens was found to have undergone calcareous degeneration, and pathological changes had occurred in the vitreous, the choroid, and the retina. The patient made a good recovery and the irritation in left eye disappeared.

**Necessity for Removal of Pterygia before Operations requiring Corneal Incision.**—Dr. H. V. Wurdemann (in the *Annals of Ophthalmology and Otology*, October, 1892) calls attention to the lack of information furnished by the text-books on this subject. He considers the danger of infection too great to warrant a corneal incision before the removal of the pterygium. He reports the case of a woman, aged sixty, who had pterygia in both eyes for many years, and which five years before had grown across the pupil and then become stationary. An iridectomy followed by corneal suppuration and iritis had been made in the right eye three months before. The right eye was sightless from the pterygium, opacity at the cornea, and occlusion of the pupil. The lower lid was turned in and the lashes rubbed the ball. The eye was painful and there was a mucopurulent discharge from the pterygium. As this condition remained after the relief of the iritis, the lid was restored to its proper position by Snellen's suture operation. In the left eye vision was not sufficient to count fingers. The corneal portion of the pterygium was long, thin, and slender, extending across the pupillary space almost to the temporal limbus. Both pterygia were removed. Later an interior iridectomy in the right eye disclosed a cataractous lens; iritis followed, and the new pupil was occluded. In the left eye a downward and outward iridectomy gave with + 5.00 c. ax.  $180^\circ$ ,  $V = \frac{6}{60}$ . With + 3.00 added the patient can sew and read large print. The author notes that irregular astigmatism follows the operation for pterygium if the tumor has encroached any distance upon the cornea.

**Cocaine in Eye-Diseases.**—In an article on the "Uses and Abuses of Cocaine" (*Med. and Surg. Reporter*, October 22, 1892) Dr. Arthur G. Hobbs makes the following statements:

"I desire to emphasize most decidedly one contra-indication in the use of cocaine as a collyrium, and that is that *it should never be used when an abrasion of the cornea exists*; nothing in the form of a collyrium is more deceptive, as it is also most grateful to a denuded corneal surface.

"The cornea is covered with the epithelial layer of the conjunctival mucous membrane only; here no middle layer proper exists whence it can derive its nutrition, hence it quickly loses its vitality when subjected to this local anæsthetic. So also the outer layer of the cornea, receiving its nutrition by imbibition only, seems to be even more susceptible to the destructive effects of cocaine.

"I have seen a number of cases during the last few years (especially



since this drug has been introduced into general use) in which the cornea has been greatly damaged by its constant and frequent introduction, for no other purpose than the temporary relief of pain; but unfortunately the relief thus produced proves to be a delusion, and the destruction produced upon the cornea is only masked for the time by the anæsthetic effects.

"I have especially seen these bad results in the cases of physicians who had themselves persisted in its use for the comforting effect to their own eyes, both during the presence of foreign bodies on the cornea and after their removal.

"Cocaine is contra-indicated also in any corneal inflammation, and should not be prescribed beyond the acute stage of any form of conjunctivitis."

**Hereditary Optic Neuritis.**—At the recent Ophthalmological Congress in Paris (*Le Progrès Méd.*, June 18, 1892) M. Despaquet presented six (6) cases of this trouble. Five of the cases were children of the same parents, who had experienced no trouble till about thirty years of age, when, without any previous nervous disease, they were attacked with violent headaches, which may have been meningeal; with this came neuritis of both optic nerves, which was followed by partial, blue atrophy, the edges of the disk being left irregular. There was concentric contraction of the visual field, but no central scotoma. The father of these five was an elderly man and an alcoholic subject. The sixth case was the child of one of the five, and was observed independently by M. Gayet, of Lyons, who recorded the same symptoms as were found in the patient's mother. None of the parents were related.

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## DISEASES OF THE LARYNX, NOSE, AND SURROUNDING STRUCTURES.

IN CHARGE OF J. PAYSON CLARK, M.D.,

Physician to the Throat Department of the Boston Dispensary; Assistant Physician for Diseases of the Throat, Massachusetts General Hospital.

**The Disturbances of the Speech and Voice in Paralysis Agitans.** (*Berlin Klin. Wochens.*, August 1, 1892.)

Dr. A. Rosenberg describes these disturbances in a case which he reports. There were involuntary irregular pauses of one to several seconds, generally between separate syllables, especially in a long word, or between two words. There were involuntary consonant or vowel sounds distinguishable at times, making the speech very difficult to understand. The velum palati and the epiglottis may take part in the trembling motion. In phonation there was a short pause after the command of the observer before the cords obeyed the will impulse of the patient. There remained a small elliptical space which vacillated in size synchronously with the

head movements. Besides this motion there was a trembling over the whole body of the cords, as well as peculiar stretching and relaxing movements. In respiration the vocal cords were generally quiet. At times there were a few rhythmical adduction movements, more frequent in expiration than in inspiration. Sensibility in pharynx and larynx was normal. In short, the same appearances are noticed in the laryngeal muscles as in the rest of the body,—the tremor, the delay in carrying out the intended movement, combined with disproportionate fatigue.

**Experiences Relative to the Exploratory Puncture and Exploratory Irrigation of the Antrum of Highmore.** (*Revue de Laryngol., d'Otol., etc.*, August 15, 1892.) By Prof. O. Chiari.

Washing out the antrum through the ostium maxillare gave a positive result in only one case. In many others pus was not discovered, although afterwards found by injection through an artificial opening, the tube evidently having entirely obstructed the ostium. In other cases it was impossible to penetrate the opening at all, because it was either too narrow or in an unfavorable situation. Enlarging the opening by galvano-cautery or removing a part of the middle turbinated seem too severe operations for mere diagnostic purposes. The writer has employed exploratory puncture under the lower turbinated with a relatively strong steel needle twelve times. The puncture failed six times on account of the thickness of the bony wall. He has also tried injection of fluid through a hollow needle introduced in this manner. For about a year he has used for this purpose a straight hollow needle with a bevelled point. This method has been tried in six cases. In only one was it impossible to perforate the bony wall. This method of injecting fluid is preferred to simple exploratory puncture as a diagnostic measure in cases where the pus may be very thick or very small in amount. It is also useful in treatment. Under antiseptic precautions the reaction is insignificant in both methods. If this method is unsuccessful the writer resorts to puncture and exploratory irrigation through the alveolar process.

**Interarytenoid Sarcoma.** (*Rev. de Laryngol., d'Otol., et de Rhinol.*, June 15, 1892.)—Dr. Délie reports a case of fuso-cellular interarytenoid sarcoma, size of a hazel-nut, with all the appearances of a benignant growth. It was easily removed by the Fauvel forceps. A slight hemorrhage was stopped with ice. On discovering the nature of the growth all parts situated between the arytenoids were removed with the galvano-cautery curette as far down as the middle of the cartilage. The wound healed at the end of a month, and there was no difficulty in swallowing or speaking. Eight months later the patient lost his voice and had some dysphagia. The whole arytenoid region and the posterior part of the false cords were swollen. The growth was rapid, invading the parts near the larynx, and there was considerable swelling of the neck. In two months tracheotomy was neces-



sary for stenosis. The patient was seized with influenza and died. Conclusions: (1) Sarcoma can exist a long time without provoking alarming symptoms and without ganglionic infection; (2) operation through the natural ways may be followed by a cure of considerable duration; (3) a recurrence, when it appears, advances rapidly.

**Laryngeal Syphilis in Childhood.** (*Archiv für Kinderheilkunde*, vol. xiv., part v.) By Dr. Hermann Strauss.—Syphilis of the larynx occurs in general in probably from three to six per cent. of all cases of syphilis. In childhood laryngeal syphilis seems very rare. Some of the reasons for this may be that laryngeal examinations in early childhood, being very difficult, are often not undertaken; the laryngeal symptoms may be very slight, and syphilitic ulcerations show such a tendency to spontaneous healing that, if other syphilitic manifestations are present, the laryngeal ulcers may heal without being diagnosticated. The writer reports three cases, in all of which the epiglottis was much swollen, in one ulcerated. In one case there was a large ulceration on the posterior laryngeal wall. He cites fourteen cases reported by others, and divides the cases into those in which the appearances of syphilis were present in the first months of life and those in which they were absent. Only one case could be proved to be hereditary. In these cases changes were seen in the epiglottis, the ary-epiglottic folds, and the posterior laryngeal wall.

Characteristic for this affection is: (1) The seat of the process; preponderating in the epiglottis, having in general the appearance of a perichondritis with relatively frequent necrosis of the cartilage. The ventricular bands are not rarely affected. (2) The preference which the process shows for appearing in a papillary form, if not in the form of a simple swelling. In only two of the cases were ulcerative or cicatricial processes wanting on the pharynx or palate. In one of these there were extensive changes in the epiglottis. In another case ulceration of the uvula appeared only after extensive changes in the epiglottis. The disease is more rapid and prognosis worse than in adults. Laryngeal examination is important for diagnosis. The cases seem to yield readily to specific treatment.

**Adenoids in the Naso-Pharynx in Children.** (*Medical Record*, August 13, 1892.)—Dr. T. H. Halsted gives his results in the examination of two hundred and sixty-eight children to discover how many of them had adenoids sufficient to cause mouth-breathing. The children were from five to fifteen years of age; one hundred and fourteen were from an institute for feeble-minded children, one hundred and fifty-four from an orphan asylum. The percentage of adenoids in these classes is much greater than would ordinarily be met with. Of the feeble-minded children twenty-three (or twenty and one-tenth per cent.) had adenoids sufficient to cause mouth-breathing; of the orphans forty (or twenty-six per cent.). Total number with adenoids, sixty-three (or twenty-three and seven-tenths per

cent.), associated with enlarged tonsils, thirty-two (or fifty per cent.), with some anterior nasal obstruction, twenty-nine (or forty-six per cent.). An inherited tendency to glandular inflammations (in other words, the strumous diathesis) is an important factor in causation. So far as these examinations go they show that adenoids were not more prevalent among the idiot asylum children than among the orphans, thus offering no support to the idea that these growths stand in the relation of cause and effect to idiocy. To be sure, the removal of these growths very often changes an apparently dull and slow child into a bright and quick one. The writer was able to examine eighty-five per cent. of these cases with the rhinoscopic mirror. This is contrary to common experience, and requires patience, perseverance, and getting the child's confidence.

## DERMATOLOGY.

IN CHARGE OF J. J. PRINGLE, M.B. (EDIN.), F.R.C.P. (LOND.),

Physician to the Department for Diseases of the Skin in the Middlesex Hospital, London.

**Barber's Itch.** (*Medical News*, September 24, 1892, page 342.) By Dr. William S. Gottheil.

This term is used by the laity to designate any disease affecting primarily the skin of the bearded portion of the face. But physicians should avoid the term; it is unscientific and meaningless. The three diseases commonly seen on the bearded face are:

1. Eczema barbæ, or ordinary eczema.
2. Perifolliculitis barbæ, or sycosis non-parasitica.
3. Trichophytosis barbæ, or sycosis parasitica, or sycosis, or ringworm.

The first form does not differ in its appearance or in the most satisfactory method for its treatment from eczema in other portions of the body.

The second form, or perifolliculitis barbæ, denotes an inflammation of the hair-follicle, and each hair-bulb is soon surrounded by pus. The proper treatment consists in the removal of the affected hair which acts as an irritating foreign body, and its removal should be followed by the application of some soothing ointment, such as the following:

R Tinct. opii, ʒss-ʒi;  
Acid. carbol., gr. x;  
Ungt. aquæ rosæ, ʒi.—M.

Sig.—Apply twice daily; keep on constantly.

When the first acute stage has passed, astringent applications are in order. This condition of the beard is frequently a very obstinate disease.

For the third form, or trichophytosis barbæ, general measures are useless. The local treatment should consist in the removal of the crusts with



olive oil, warm water, and soap; and removal of the excess of hair by cutting, not by shaving. After thorough epilation a strong solution of corrosive sublimate should be employed, as in the following prescription:

R Hydrarg. chlorid. corrosiv., gr. ii-iv;  
Glycerini, ʒi;  
Aq. Cologniensis, ʒi.—M.  
Sig.—Apply twice daily.

Start with the weakest solution and rapidly increase its strength. For small diseased areas emplastrum hydrargyri or unguentum hydrargyri does fairly well. A solution of the oleate of mercury—from five per cent. to ten per cent. in oleic acid—is of use, and should be painted on twice daily. But in almost all cases the physician will finally be compelled to have recourse to mercuric chloride, and might as well start with it. A twelve-grain-to-the-ounce solution has proved necessary in some few cases; of course, such strong solutions must be applied by the physician himself; they cannot be entrusted to the patient.

**A Case of Multiple Sarcoma of the Scalp.** (*Journal of Cutaneous and Genito-Urinary Diseases*, October, 1892, p. 393.) By Dr. I. E. Cohn.

The patient was a native of Scotland, fifty-two years old. Her family and personal history were negative. At the age of twenty-four she first noticed a small growth on the top of her head, which was removed by Professor Simpson, of Edinburgh. No recurrence was observed for seven years, when another growth appeared a little to the right of the former site. This was also removed. Soon after this many smaller ones appeared and studded the entire scalp. During their development she suffered no pain. The pedicles of some of the growths were very slim and could be easily ligated, while others were so broad as to require removal with the knife. The article is accompanied with anterior and lateral photographs of the patient, and a drawing from a microscopic section of one of the growths.

**The Use of Iodine, Carbolic Acid, and Chloral in Dermatology.** (*Journal of Cutaneous and Genito-Urinary Diseases*, October, 1892, p. 380.) By Condict W. Cutler, M.S., M.D.

While there is nothing new in the use of these drugs in dermatology, either alone or in combination, the writer adds his testimony to the good results which they may bring about. Iodine is a decided antiseptic and shows a tendency to hasten the absorption of all inflammatory products. Carbolic acid first produces a burning pain, which is quickly followed by anæsthesia of the part to which it is applied. It also has the property of hastening the absorption of inflammatory products. Chloral is also a rubefacient, producing first redness, and then heat of the skin, followed by pronounced anæsthesia. When these three drugs are combined they form a solution possessing strong antiseptic, antiparasitic, antipruritic, antiphlogis-

tic, analgesic, anæsthetic, and absorptive properties. It penetrates deeply into the tissues of the skin, not only hastening the absorption of inflammatory products, but being itself readily absorbed. When painted over a large area there is always a danger of the absorption of carbolic acid resulting in constitutional poisoning. The writer has had especially good results with this combination in the treatment of ringworm of the scalp. Cases which had resisted other forms of treatment for months began to improve at once and were practically cured in three or four weeks. It is useful in the inflammatory forms of ringworm, as well as in the non-inflammatory forms.

Superficial paronychia has been entirely cured by one or two applications. Lupus erythematosus, lichen planus, molluscum contagiosum, chloasma, leucoderma, etc., have also been treated successfully, and the author knows of no application which will prove as beneficial in hastening the return of hair to patches of alopecia areata as this solution.

**Lichen Scrofulosum.** (*Journal of Cutaneous and Genito-Urinary Diseases*, October, 1892, p. 403.)—Dr. C. G. Currier sent a case to the meeting of the New York Dermatological Society with the following history: L. B., born in Italy, twelve years old. In April, 1889, she recognized "raised spots" thickly diffused over the back and elsewhere. In December, 1890, both knees became swollen. She entered Roosevelt Hospital twice, and the diagnosis on these occasions was "chronic phthisis and bronchitis." The mother had eleven children; eight died and three are living. When seen by the author there was slight apex infiltration and some moist râles with slight irregular cough. The child was intelligent and fairly developed. The synovial sacs of both knees were dilated. The raised papules were grouped in places the size of a dollar or larger. They were most abundant over the back. On the back of the thigh and calf some had broken down and formed narrow, deep, necrotic ulcers quite resistant to treatment. In three months they were nearly all gone, and in six months almost all evidence of their presence had disappeared. About a year later the lichen manifestations returned. Previous examination of a portion of the skin removed from the back failed to demonstrate the presence of any tubercular bacilli.

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## HYGIENE AND BACTERIOLOGY.

IN CHARGE OF A. C. ABBOTT, M.D.,

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**Diphtheria and allied Pseudo-Membranous Inflammations,—a Clinical and Bacteriological Study.** (*Medical Record*, New York, July 30 and August 6, 1892.) By William Hallock Park, M.D.

The result of this work is as follows: In one hundred and fifty-nine



cases of pseudo-membranous inflammations there were fifty-four in which the Klebs-Löffler or diphtheria bacilli were present, usually as the only or most numerous form of bacteria. With them were often associated streptococci and other micro-organisms. In every one of the remaining, streptococci were the most abundant bacteria, and often the only ones. From various pseudo-membranes the streptococci obtained differed in manner of growth and pathogenic action. The staphylococci were often entirely absent, at other times present in moderate numbers, but never in excess of the streptococci.

*Location of Lesion.*—In both diphtheria and pseudo-diphtheria the pseudo-membranes occurred on the mucous membrane of the nose, pharynx, larynx, soft palate, and tonsils. In both the tonsils were the parts most frequently involved. The nasal cavities were more often involved in true diphtheria.

In quite a large proportion of cases evidence was obtained of the direct spreading of diphtheria through contact with infected persons and clothing. In only a few cases of pseudo-diphtheria was equally strong proof obtained.

It is important at the outset to remember that true diphtheria is frequently associated with pseudo-diphtheria, and this mingling of the two adds greatly to the clinical difficulties. Severe uncomplicated pseudo-membranous laryngitis may be either true or pseudo-diphtheria. The early clinical diagnosis is usually impossible. Low temperature, great prostration, and heart-failure point to true diphtheria. A high temperature, lung complication, and no history of infection are in favor of pseudo-diphtheria.

Death occurred usually early, due to heart-failure in diphtheria; usually later, due to broncho-pneumonia, in pseudo-diphtheria.

*Conclusions.*—The results of previous investigations, with the addition of that brought out in these studies, seem to force on us the conclusion that there are two great divisions of pseudo-membranous inflammations, one caused by the Klebs-Löffler bacilli and the other by some form of streptococci. The few cases in which the pneumococcus of Fränkel or other cocci seem the cause naturally fall in the second division.

The first is, from beginning to end, a local process, and its lesions are due to the effects of the poison formed by the bacilli in the pseudo-membrane. It is dangerous at all periods of life. The second is also at first a local lesion, but may at any time become a general infection. It is peculiarly liable to cause broncho-pneumonia in children. Both diseases are frequently associated together. Both are directly contagious, though in different degrees.

These two diseases, caused by different bacteria and differing in so many points, should no longer be called by the same name. The name diphtheria will probably be agreed upon by all for those cases in which the Klebs-Löffler bacilli are present, whether alone or associated with other bacteria.

For the second division some name will have to be agreed upon; whether the streptococcus will be found to be in such a majority the cause

that the name streptococcus diphtheria can be applied to it, only further investigation can determine. Perhaps at present the term pseudo-diphtheria will be acceptable.

In all cases where the diagnosis is in doubt, bacteriological examination should be made, because :

1. A correct diagnosis should always be sought for.
2. Without an examination, all attempts to learn from statistics the worth of special forms of treatment and methods of prevention are well-nigh useless, from the frequent incorrectness of the diagnosis. The fact that during four months less than one-third of the cases sent to the diphtheria wards of the hospital had true diphtheria is sufficient proof of the difficulty of making a clinical diagnosis.
3. It is a great help to prognosis and rational treatment in the more severe cases and enables us to take measures more effectually to prevent the spread of the contagion.
4. It is certain, can frequently be made immediately, and always within twenty hours.

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## PATHOLOGY.

IN CHARGE OF ALLEN J. SMITH, A.M., M.D.,

Professor of Pathology in the Medical Department of the University of Texas, Galveston, Texas.

Primary Tumors of the Deep Respiratory Passages. (*Virchow's Archiv*, Bd. 129, H. 3. Ueber primäre Geschwülste der unteren Luftwege.)—Siegert records two instances of primary new growths of the lower air-passages, one a papilloma situated in the trachea near its bifurcation, the other a chondroma in the middle lobe of the right lung, close to the hilus and seated on the inner surface of the main bronchus of the lobe. The first of these tumors was of the size of a pigeon's egg, and apparently, on opening the trachea, almost occluded its lumen. Of tracheal tumors papillomata are the most common, and are distributed, if the examination of the literature of the subject made by the author may be accepted, with greater frequency at the upper end and in the larynx, and at its lower extremity close to the point of division. These two points correspond to the points of greatest functional irritation from the air and contained particles passing through the trachea, the irritation being most felt in the larynx in expiration as a place of contraction of the air-column ascending while from obvious reasons in inspiration the point of division of the entering air-column presents the most chance for irregularities in its motion, and hence for irritation of the surrounding membrane. The author suggests, as another reason for the greater frequency of neoplasms at this position than elsewhere along the tracheal or bronchial tube, that the position of the bifurcation corresponds to the original point of separation of the respiratory and digestive passages (His), and that these tumors may arise as the result



of deviations of development. The idea of developmental influence in causing the occurrence of tumors at this site is borne out by the histology of the growth described by Siegert. The tumor was composed of a fibrous basis, rather highly vascularized, and covered over by stratified epithelium, showing prickle cells in the deeper layers, as well as epithelial pearls and inversions. These last features suggest strongly that the tumor partakes of a cancerous nature, but in the absence of any evidence of invasion of lymphatic channels by epithelial cells, the author is disposed to regard them as simple expressions of the natural keratous change of flat surface epithelium. Looking upon the original type of the epithelium of the lung and respiratory passages as a flat form, the present instance may be deemed an illustration of the reversion to the embryonal state so often met in the history of new growths. It is possible, however, that it is no more than an instance of metaplasia of the ordinary ciliated cells of this position.

The second tumor was an instance of a rather rare occurrence, the primary growth of a chondroma from the cartilaginous elements of a bronchus. Secondary cartilage tumors of the lungs are not uncommon, but the author was able to gather but four instances of such primary formations from the literature at hand; and there are reputable text-books (as that of Cornil and Ranvier) which deny the primary origin of such a growth from this source. The tumor projected from the mucous surface of the bronchus, lay in a bronchiectatic cavity, and was covered over by the thickened but otherwise normal mucous membrane. Its growth from the bronchial perichondrium was easily and definitely established. Another peculiarity about the tumor was the extreme vascularity, the interior being channelled out by relatively large vessels to such an extent that the author refers to it as a combination between a chondroma and an angioma. The angiomatous structure looked very like the structure of the angiomas which are commonly met with in the liver. Virchow (*Die Krankhaften Geschwülste*, 1866, Bd. ii., § 286) has also placed such a combination on record in a tumor in a similar position, and describes it as an *angioma telangiectodes*.

**A Simple Method for the Detection of Tubercle Bacilli in the Sputum.** (Ein einfaches Verfahren zum Nachweis der Tuberkel-Bacillen im Auswurf. *Centralbl. für Bakteriologie u. Parasitenkunde*, Bd. xii., Nos. 4 and 5.)

Dr. P. Kaufmann, of Cairo, suggests, as a simple substitute for the acids used in the differentiation of the tubercle bacilli in the ordinary methods of staining, boiling water, or water of the temperature of 98° or 99° C. He suggests that the sputum be spread as usual upon a cover-glass, dried, and fixed over the flame or in alcohol, and then stained in warm carbol-fuchsin in the accepted manner. Instead, however, of exposing the preparation next to the action of some acid, the author would gently pass the cover-glass to and fro through hot water until but a faint rosy tinge remains. The tubercle bacilli retain their stain for about five minutes in

hot water, and as a rule the exposure of the preparation to the water should not exceed three minutes; generally speaking, one or two minutes suffice. The preparation may be at once placed under the microscope for examination, or may be counter-stained by the usual methods.

**Influence of Noxious Gases upon the Course of the Anthrax Infection.** (Influence de quelques gaz délétères sur la marche de l'infection charbonneuse.)—In a series of experiments prosecuted by MM. Charrin and Roger, *La France Médicale*, September 23, 1892), reported before l'Académie des Sciences, September 12, 1892, these investigators placed animals inoculated with virulent anthrax in atmospheres strongly charged with carbonic oxide. They were unable to recognize in these cases any influence exerted by the measure upon the course of the malady. However, when the same kind of animals inoculated with anthrax of diminished virulence were subjected to the same conditions, the disease rapidly assumed a virulent character; and the conclusion is, therefore, announced that an atmosphere impregnated strongly with the products of animal respiration is decidedly favorable to the development of the fullest severity of the anthrax infection.

## CLIMATOLOGY.

IN CHARGE OF GUY HINSDALE, M.D.,

Lecturer on Climatology in the University of Pennsylvania, Philadelphia.

**Cause of Sea-sickness and Remedies for it.** (*Popular Science Monthly*, November, 1892.)—Dr. Herbert Danvers believes that it is a mechanical irritation of the walls of the stomach due to contact of parts not usually in apposition with one another. The effect of this is to produce reflex stimulation of the vomiting centre in the medulla and directly a subacute gastritis; diminished blood-supply of the head and neck (as seen in the extraordinary pallor of the face); and a disturbance of cerebral circulation, resulting in a general nerve starvation, which is evidenced by headache of neuralgic intensity. Clinically, three divisions of cases are made according as head symptoms or gastric symptoms largely predominate, or head and gastric symptoms are combined in nearly equal degrees (mixed cases).

The author treats the cases of the first group with enemas, followed by nerve sedatives and then with measures to raise depressed spirits. In cases of the second group he administers warm water as an emetic, followed by prescriptions for allaying gastric irritability. For the mixed cases soda and compound tincture of cardamom or nitro-muriatic acid during the day, with a pill of calomel, colocynth, and hyoscyamus at bedtime, have been found efficient. These methods of treatment apply solely to large ocean steamers on which the passengers remain a week or more. In the case of



short trips on small vessels, in which the motions are different, the author is sure that we have no drug or combination of drugs that will act as a panacea.

Sea-sickness.—The *British Medical Journal* during July and August contained letters from leading physicians, including Graily Hewitt, Robert Barnes, and Professor Chartiris, on their professional experience in sea-sickness. Professor Chartiris calls the attention of the medical profession to a combination which he calls "chlorobrom," containing to each dose thirty grains of chloralamide and the same of potassium bromide in an ounce of menstruum. The patient is recommended to move the bowels before starting, and before getting into rough water take the mixture; sound sleep occurs, and when he awakes he is all right for the rest of the voyage. At the least, this has been the experience of those who have used the remedy. Professor Chartiris says,—

"1. This solution is absolutely safe and harmless, and produces refreshing sleep without any baneful after-effects.

"2. When judiciously administered it prevents, and in all cases alleviates, sea-sickness. The effects of the drug may be expected to begin in from thirty to ninety minutes after dosage; and the duration of sleep thus induced will be from five to eight hours. The quality of sleep is said to be refreshing, natural, and devoid of disagreeable sequels in nearly all cases."

Health-Resorts and Mineral Springs of North Carolina. (*Journal of Balneology*, September, 1892).—Dr. A. N. Bell calls attention to the exceeding healthfulness of the central and western part of North Carolina. The middle pine-forest region gradually rises into Western North Carolina, no part of which is less than fifteen hundred feet above the level of the sea where the Alleghanies reach their greatest altitude and show the loftiest peaks east of the Mississippi River. The table-land or mountain plateau between the ridges consists of a series of well-watered, forest-covered or fruitful valleys and hills, from two thousand to three thousand feet above sea-level, and is one of the most picturesque and salubrious sections in the United States. The average annual rainfall in this region is about forty-four inches. Descriptions of Asheville, Piedmont Springs, Glen Alpine, Roan Mountain, Caesar's Head, Cashier's Valley, Hot Springs, and Waynesville are reprinted from Dr. Henry O. Marcy's report to the Ninth International Medical Congress, and a tabular statement of the characteristics of eighty-two mineral springs in the State is appended.

Since Dr. Marcy's report immense improvements have been made in North Carolina health-resorts. The editor would call especial attention to the advantages of a residence at Hot Springs and Fayetteville during the winter and spring, the new summer resort, Linville, near the Tennessee line, and the summit of Roan Mountain, both of which are excellent summer

resorts. Linville's altitude is three thousand nine hundred feet, while the Cloudland Hotel on Roan Mountain is at an elevation of six thousand three hundred and ninety-four feet. The latter is more than four thousand feet above Asheville, over a thousand feet higher than Denver, Colorado, and four thousand three hundred feet higher than the highest resort in the Adirondack Mountains.

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## REVIEW OF ITALIAN, SPANISH, AND PORTUGUESE MEDICINE.

IN CHARGE OF A. M. FERNANDEZ DE YBARRA, M.D.,

Corresponding Member of the Medico-Chirurgical Academy of Madrid, Spain, the Argentine Medical Circle of Buenos Ayres, South America, and the Society for Clinical Studies, of Havana, Cuba.

A Case of Polyneuritis accompanied by Anasarca. (*Rivista generale italiana di clinica medica*, February 29 and April 30, 1892.) By Dr. Grocco.

The patient was so weak that he had to stay in bed; had a little fever during the exacerbation of the symptoms; felt alternating periods of calm and great suffering. When he experienced great pain in the limbs, there was hyperhidrosis, cyanosis, and increased œdema of the hands, tumefaction and pain in the joints of the legs, and great hyperalgesia on pressing the muscles. The swelling was more marked in the arms and face, increased with the increase of general pain, and diminished also at the same time with it, without any relation to the cardiac symptoms whatsoever, and without any albuminuria. Fibrillar shaking of the muscles.

The day he died he had a sudden augmentation of the dyspnoea accompanied by pulmonary congestion, brought about by an access of tachycardia (pulse 120), and great increase of the size of the heart (eleven centimetres instead of eight); at the same time a diminution of the anasarca was noticed, the patient breathing his last almost instantly.

The author calls attention to the presence in this case of considerable œdema, which is infrequent in ordinary cases of polyneuritis, and its possible connection with beri-beri.

Peripheral Neuritis in Cancerous Patients. (*La Terapia moderna*, June, 1892.)

Dr. Guido Vivante reviews the different pathological hypotheses that have been advanced to explain these forms of neuritis, after having mentioned the first contribution on the subject by Oppenheim and Siemerling, and the recently-published and more complete one of Auché, of Bordeaux. The œdema cannot be the determining cause, because the seat of the affected nerves does not generally correspond with the œdematous regions. The existence of ganglions, or secondary tumors pressing the nerves, does not



explain, either, the majority of the cases of this neuritis. The author speaks guardedly in regard to the microbian theory of cancer, and of the part that toxines could take in the production of these nervous affections; he favors the idea of attributing them to derangements of nutrition during the cachectic period. As for the hypothesis of vertebral lesions that could compress the nerves at their emerging point, he says it very often fails to satisfactorily elucidate the causation of the disease. Let us remember then in this connection the part that some one has attributed to the ascending neuritis of the pneumogastric nerve in the production of the spinal symptoms developed during an attack of cancer of the stomach.

**Cerebral Uræmia followed by Paraplegia in a Man Suffering from Bright's Disease without Albuminuria.** (*Anales del Círculo Médico Argentino*, Buenos Ayres, May, 1892.)

Dr. Araoz Alfaro reports the case of a man, thirty-nine years of age, who had been suffering for a year from general œdema, which began in the eyelids; he also had ascites, double hydrothorax, and complained of dyspnoea without presenting any cardiac lesion; the pulse marked twenty-one millimetres with the sphygmo-manometer of Potain; the urine was scarce and contained eighteen grammes of urea to the litre, but no albumin. A strict milk diet was prescribed, which, however, did not prevent the appearance of attacks of eclampsia, that necessitated the extraction of blood. After eight days of treatment the patient passed two litres of urine daily; at the same time the arterial tension lowered to fourteen millimetres; but on leaving the bed he could not stand on his feet, and shortly after had symptoms of paralysis in the upper limbs. This clinical observation is interesting because it adds one more to the cases of Bright's disease of the kidneys without albuminuria, and also on account of the presence of paraplegia.

**Cocaine in Tinnitus Aurium due to Alterations of the Tympanum.** (*El Siglo Médico*, Madrid, No. 14, 1892.) By Dr. Carralero.

This buzzing sound in the ear is extremely painful to the patient. The instillation of a solution of cocaine (four per cent.), made on the tympanum through the Eustachian tube, has given the author excellent results, especially when the buzzing follows hyperæmia and catarrh of the tympanum, congestion of the labyrinth, the hyperæsthetic condition of the internal ear and also of the middle one, the contraction of the muscle of the stapes (*stapedius*), the internal muscle of the malleus (*tensor tympani*), and even the otitis called by some authors "sclerotic."

The instillations should be practised at first every day, and afterwards every two or three days, by means of the sound invented by Ytard.

# FORENSIC MEDICINE.

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IN CHARGE OF LORENZO D. BULETTE,  
Of the Philadelphia Bar.

## *MAY A PHYSICIAN DECLINE TO TESTIFY AS A MEDICAL EXPERT UNTIL SPECIAL COMPENSATION IS MADE?*

THERE is a wide-spread opinion among members of the medical profession that, when a physician is called as an expert witness in a court of justice, he may refuse to testify until a reasonable compensation for his professional opinion is made or secured. This is doubtless due to the misapprehension of writers on medical jurisprudence, who, being mostly physicians, have arrived at their conclusions without an examination of the two lines of decision and determining on which side the weight of authority lies. And, as a consequence, their advice to the medical expert that he should, in justice to himself, refuse to testify until properly remunerated, while safe enough to follow in some States, would be dangerous in others and subject the witness to punishment by fine or imprisonment for contempt of court. The decisions as intimated are not in harmony on this question of such practical importance to the medical profession. It is the purpose of this paper, therefore, by selecting a well-considered case on each side of the question, to deduce therefrom a rule which shall be a safe guide to the expert medical witness in every jurisdiction.

In *Buchman vs. State*<sup>1</sup> it was decided that a physician cannot be required to testify as a medical expert until a reasonable compensation is made for his professional opinion.

The question arose during the trial of a prisoner on an indictment charging him with the commission of a felony. Doctor B., who was called as an expert, upon being asked a question involving his professional knowledge, respectfully declined to answer until he was reasonably compensated by the party calling him.

The court being of the opinion that the witness was required by law to answer the question without compensation other than ordinary witness fees, and the witness persisting in his refusal to answer, he was committed as for contempt. From this commitment the witness appealed, and the Supreme

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<sup>1</sup> 59 Ind. 1.



Court, in an opinion delivered by Mr. Justice Worden, said, "It must be and is conceded that a physician or surgeon, when called upon, must attend and testify to facts within his knowledge for the same compensation, in the way of fees, as any other witness. In respect to facts within his knowledge he stands upon an equality, in reference to compensation, with all other witnesses." But in matters involving his professional knowledge, the court, after an examination of the English and American cases, came to the conclusion that an expert does not stand upon an equality with other witnesses, and that the party who selects him must pay him for his time before he will be compelled to testify. And the court further says, "If physicians and surgeons can be compelled to render professional services by giving their opinions on the trial of criminal causes without compensation, then an eminent physician or surgeon may be compelled to go to any part of the State at any and all times to render such service without other compensation than such as he may recover as ordinary witness fees from the defendant in the prosecution, depending upon his conviction and ability to pay. This, under the general principles of law and the Constitution of the State, he cannot be compelled to do." And the judgment of the court below was reversed.

On the other hand, in *Ex parte Dement*,<sup>1</sup> during the trial of a prisoner on the charge of murder, Dr. D. was called as a witness for the State,—the prosecuting attorney saying that he desired to examine him as an expert. After testifying that he was a physician and had seen the deceased after he had received the wounds which the prosecution asserted had produced death, he was asked to state the nature and character of the wound received, and its probable effect. This Dr. D. declined to do, upon the ground that "he had not been remunerated for his professional opinion, nor had compensation for his professional opinion been secured." The Court informed the witness that it was his duty to answer; and, upon his declining to do so, imposed a fine for contempt of court.

A motion was afterwards made to have the fine set aside on the ground that it was illegal, the Court not having power to compel a physician to testify as a professional expert until compensation for his professional opinion was first paid or secured. But this motion was overruled by the Court, and judgment for the fine was entered accordingly.

An appeal to reverse this judgment was taken to the Supreme Court, where it was argued on behalf of the appellant that there is quite a difference between compelling a physician to testify to a fact which he has witnessed, and forcing him to appear merely to give the results of his peculiar skill and experience—or, in other words, under guise of calling him as an expert, to compel him to give professional opinions without being paid for them as such. To hold otherwise, subjects the professional man to unjust burdens, and makes improper discriminations against him. When a physician appears merely to testify to what he has seen or knows individually, he does only what any other citizen can be compelled to do; but when

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<sup>1</sup> 53 Ala. 386.

he has no actual knowledge of any fact in the case, and is nevertheless forced to testify without being paid as for a professional opinion, his skill and knowledge, which are his private property, are taken from him without compensation.

Mr. Justice Manning, in delivering the opinion of the Supreme Court, said, "The question presented in this case is whether a physician is punishable as for a contempt for refusing to testify as an expert without being paid for his testimony as for a professional opinion." And, after a review of all the cases bearing upon the point, the Court continued, "It is not intimated by any of them that a physician, when testifying, is to be considered as exercising his skill and learning in the healing art, which is his high vocation; or that a counsellor at law, in the same situation, is exerting his talents and acquirements in professionally investigating and upholding the rights of a client. If this were so each one should be paid for his testimony as a witness, as he is paid by his clients, or patients, according to the importance of the case and his own established reputation for ability and skill. But in truth he is not really employed or retained by any person. And the evidence he is required to give should not be given with the intent to take the part of either contestant in the suit, but with a strict regard to the truth, in order to aid the court to pronounce a correct judgment.

"Perhaps the attitude of one testifying, as an expert, of a matter in respect to which he is made conversant or skilled by his ordinary employment is not so different as is supposed from that of another who testifies to acts or things done by or between the parties to a cause. It generally happens that, after all the direct facts of a transaction are brought before a court, a knowledge of other facts, not part of the dealing or affair between the litigants, is necessary to a proper understanding and decision thereupon. For instance, one man may contract to sell and deliver to another on a certain future day, for a price agreed on, a specified quantity of a valuable commodity, and afterwards fail or refuse to do so, and thereupon be sued by the latter. Witnesses to the agreement between them must be produced to prove the contract, of course, but when this is fully done, it must be further shown to the court and jury what was the value of the commodity on the day and at the place where it was to be delivered, else it cannot be known what sum of money would be an adequate compensation for the breach of the contract. And to prove its value, it may be necessary to call in some person, who was living at that place at that time, and a dealer in commodities of the same kind, who did not know, and had never before heard of the parties to the cause. Or, if the contract supposed was made in a country foreign from that in which the suit was brought, and it depended upon the laws of that foreign country whether it was valid or not, the court would need to be informed what its laws were concerning the making of such a contract, that it might know whether or not it was validly made. And if lawyers of that country were within the jurisdiction



of the court, it might be necessary to have the testimony of one or more of them to prove what those laws were. Or, if the contract was made and to be performed in a place of much trade, and contained terms having a peculiar but well-established meaning, according to the usage and dealings among persons engaged in that trade, which meaning it was important to have proved, merchants or persons engaged therein would have to be brought before the court to prove the usage and meaning, just as an interpreter would be called in to translate writings in a foreign language.

"In all these instances, persons who may be wholly unacquainted with the parties to a cause, and know nothing of the transactions between them; may be required to come from their offices and the care of their own important affairs, into court to testify for the benefit of strangers, in regard to matters in which they have themselves become conversant only by attending to their own business. And why are they required to do so? Because they know things important to the right determination of a controversy pending; and the law allows no excuse for withholding evidence which is relevant to the matters in question before its tribunals, and is not protected from disclosure by some principle of legal policy. And also because the administration of justice being a source of mutual benefit to all the members of a community, each is under obligation to aid in furthering it, as a matter of public duty. As an *ordinary* witness, or a juror, every competent citizen may be summoned by due process of law to appear and render personal service in court, without right on his part to a special compensation for so doing. His time is, *quoad hoc*, claimed by the public as a tax paid by him to the system of law which protects his rights, as well as those of others."

As the best expression of the prevalent notion that expert witnesses may refuse to testify until adequate compensation is paid or secured to them, the court quotes the following language from Ordroneaux's valuable treatise: "It is evident that the skill and professional experience of a man are so far his individual capital and property, that he cannot be compelled to bestow it gratuitously upon any party. Neither the public, any more than a private person, have a right to extort services from him in the line of his profession without adequate compensation. On the witness stand, precisely as in his office, his opinions may be given or withheld at pleasure; for a skilled witness cannot be compelled to give an opinion, nor committed for contempt, if he refuses to do so. Whoever calls for an opinion from him in chief is under obligation to remunerate him, since he has to that extent employed him professionally, and the expert at the outset may decline giving his opinion until the party calling him either pays or agrees to pay him for it."

"But this passage," says the court, "the accomplished and learned writer does not sustain with the authority of adjudged cases. The exception in favor of experts, thus contended for against the general rule relating to witnesses, is not established; and, until the legislature make provision for the compensation of experts, the courts must, in a manner that shall be as

little oppressive as possible, insist on proper occasions, upon their attending and testifying as ordinary witnesses. Thus, the author truly says: 'As all definite knowledge springs from the possession of facts corroborating previous conjectures, so evidence is the expression of a necessity of the human mind for all such facts as will enable it to form a conclusive judgment. Without evidence, therefore, there can be no knowledge; and in order to secure it, the law seeks for testimony either through the mouths of living witnesses, the agency of written instruments, material objects and surrounding circumstances, or expressions of opinions predicated upon an acknowledged state of facts.' And again he says in relation to experts when testifying as witnesses: 'They are truly the advisers of the court, *amici curiæ*, rather than parties interested in the issue of the trial.' And he adds: 'This fact, it is painful to confess, is too much ignored both by counsel as well as courts, and the expert is constantly apt to be treated like an interested party whose every word is tainted with the prejudice of a personal concern in the transaction.'

"It may, however, be said of other witnesses also, that, in theory, they are disinterested and *amici curiæ*. All witnesses should be so, whether testifying to the facts of a transaction that happened under their own observation, or to those natural laws and effects which are learned only by experiment and study. And we may add that a cross-examination of those of the latter class must be allowed as well as those of the former, in order that it may be ascertained, so far as by such means it may be, whether they do, indeed, so well and accurately know the matters and things about which they testify, and are so free from bias and partisanship towards the individuals concerned, or conflicting schools and theories, as to be wholly trustworthy as witnesses. For, in fact, they are all witnesses at last. And the same principle which justifies the bringing of the mechanic from his workshop, the merchant from his storehouse, the broker from exchange, or the lawyer from his engagements to testify in regard to some matter which he has learned in the exercise of his art or profession, authorizes the summoning of a physician, or surgeon, or skilled apothecary to testify of a like matter, when relevant to a cause pending for determination in a judicial tribunal. And if in a prosecution of an individual for murder it was proved that his supposed victim had, a short time before his death, drunk something which he had received from the accused, and a chemist had analyzed the liquid and testified what substances it contained, and a physician was summoned to prove what effect they would have when taken into the stomach of a living man, and what would be the symptoms of such effect, no court would be excusable in exonerating the physician from giving such evidence solely on the ground that it would be a professional opinion for which he had not been paid or received a promise of payment.

"In so testifying he would not be practising the healing art; he would, like the merchant, or the lawyer, or the mechanic, before referred to, be deposing only to things which he had learned in the course of his occupa-



tion or profession, or of the preparation for it, and the disclosure of which to the Court, would conduce to a correct understanding of a cause before it. His testimony would concern the administration of justice. And of him, as of the other witnesses, it could be justly 'claimed by the public, as a tax paid by him to that system of laws which protects his rights as well as others.' The decisions of Courts concern the property, reputation, liberty, or lives of men, and are carried into execution as the judgments of the law. Every individual, high or low, is subject to them. It is, therefore, of vital public interest that the tribunals which pronounce these judgments shall have power to coerce the production of any relevant testimony existing within the sphere of their jurisdiction, requisite to prevent them from falling into error."

The rule denying the right to extra compensation appears to prevail in Texas, Illinois, Alabama, and Minnesota; while the opposite rule prevails in Indiana and perhaps the United States Courts, and also in England.

It should be remarked that the authority of *Buchman vs. State* is very much weakened by the fact that two out of the five judges joined in filing a very able dissenting opinion. But apart from this, the decision could scarcely have been otherwise in that State, since a clause of the bill of rights in their constitution declares that "no man's particular services shall be demanded without just compensation."

Statutes providing extra compensation for expert witnesses have been enacted in Indiana, Iowa, Minnesota, and North Carolina, and where such statute exists, the physician's fee will be secured to him by being taxed as costs.

The weight of authority is decidedly in favor of compelling an expert witness to testify, even when no other compensation has been tendered than the customary fees for witnesses testifying to ordinary facts. The only prudent and safe course, therefore, except in those States in which there is a statute or decision settling the question in favor of the physician, is to testify if required by the court to do so. Otherwise the witness is liable to punishment for contempt.

## BOOK REVIEWS.

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A TREATISE ON NERVOUS AND MENTAL DISEASES, FOR STUDENTS AND PRACTITIONERS OF MEDICINE. By Landon Carter Gray, M.D. Philadelphia: Lea Brothers & Co., 1893.

"This book," the preface tells us, "is an endeavor to put a working knowledge of nervous and mental diseases into the hands of students and practitioners." Its purpose is rigidly therapeutical. On the whole the task set is well done. Directions as to treatment are emphatic, the language is simple, and usually the style is clear, though in this matter there are some curious slips. We must, however, exercise the reviewer's privilege and withhold unbounded praise. Massage does not receive the attention it deserves,—indeed, in one place it is spoken of as "a method that has come into vogue of late years with more credit than it deserves." The author has almost discontinued its use in neurasthenia. The use of ice on the præcordia in exophthalmic goitre is not mentioned. In the article on primary lateral sclerosis we are told, what is of course true, that autopsies on so-called cases do not warrant the theory that a primary affection of the lateral pyramidal columns exists. On the next page it is stated that the diagnosis of lateral sclerosis from other diseases is generally easy enough. To diagnosticate a disease the existence of which is as yet unproven seems to us to require peculiar skill, and not to be an easy matter. Sciatica receives scant courtesy. The word is not in the index, and the disease is described in six and a half lines. Hip-joint disease and intrapelvic trouble are not referred to as possible causative agents. For some reason not clearly understandable Friedreich's ataxia is not put among the other spinal-cord diseases. The statement that in this disease the knee-jerk is always absent is, to say the least, dogmatic. Certainly cases have been reported which, while agreeing in all other essentials with the usual picture of the disease, had increased knee-jerks. In the article on infantile palsy nothing is said of the so-called pseudo-paresis of rickets. We can find nothing about sudden or acute bulbar palsy.

We fail to see the object of putting bibliographical lists in a text-book. They are out of place, and are in this instance, as they are bound to be under such circumstances, incomplete. The index is bad, very bad.

THE PHYSICIAN'S VISITING LIST FOR 1893. Philadelphia: P. Blakiston, Son & Co., Price \$1.00.

This little book presents a very attractive appearance in the forty-second year of its publication. It is of small size, not much larger than a pocket-book, and can be conveniently carried in the inside coat-pocket. The first thirty-two pages following the usual calendar are devoted to: tables of weights and measures, a table for converting apothecary weights and measures into grams, a dose table, a list of new remedies, incompatibilities, poisons and their antidotes, disinfectants, essential points on the examination of urine, by Dr. Judson Daland, based upon Dr. Tyson's book, points in the differential diagnosis of Bright's disease, diagnosis and treatment of the simpler diseases of the eye, by Dr. George M. Gould, a table of the eruptive fevers, asphyxia, and apnoea, a new and complete table for calculating the period of utero-gestation, a comparison of thermometers and local therapeutics.



Ample room is provided in the blank leaves of the visiting list for twenty-five patients per week, as well as monthly memoranda, addresses of nurses, patients, and others, memoranda of wants, obstetric engagements, vaccinations, record of births, record of deaths, and cash account, etc. Taking it all in all, this little book leaves nothing to be desired, and no additions could be suggested by the most critical. It is well adapted to become a useful part of an active physician's armamentarium.

**TEXT-BOOK OF OPHTHALMOLOGY.** By Dr. Ernest Fuchs, Professor of Ophthalmology in the University of Vienna. 750 pages, 178 wood-cuts. Authorized translation from the second enlarged and improved German edition, by A. Duane, M.D. New York: D. Appleton & Co.

The deluge of text-books on ophthalmology must be appalling to the medical students and general practitioners for whom, apparently, all the recent works have been written. We *now* have before us a work that not only the student and general practitioner will find useful, but the advanced ophthalmologist will find absolutely indispensable. Professor Fuchs has rivalled and probably surpassed Mackenzie as an observer, and he has also the rare faculty of recording his observations accurately.

Professor Fuchs combines in this work his vast clinical experiences with the teachings of his old friend and instructor, Professor von Arlt, which may be readily traced between the lines.

The context of the book is modelled after the German style of teaching,—diseases first, and refraction second.

With us, such details are reversed.

The first part of the book treats, in an elaborate style, of the examination of the eye, followed by functional testing of light-sense and simulation of blindness. Part second, which runs through fifteen chapters, is devoted to diseases of the eye.

Part third speaks of the anomalies of refraction and accommodation. These chapters do not give us any new information on the practical side of ophthalmic science, as the American school, without doubt, leads all others. Part four, which speaks of operations, is the best part of the book. It is the cleverest, and, we may say, the best, yet published on operative ophthalmology.

The operative school of Vienna has maintained its high standard from the days of Beer, Jaeger, V. Arlt, Stelwag, and Mauthner, up to the present time, for nowhere is the technique of operations better taught than in Vienna.

It was the rare privilege of the reviewer to have had practical experience in this school, and among his instructors none were better than the author of this work. Professor Fuchs has given to the world what was then given to but a few.

An exhaustive book like this, which has gone through two German editions in a comparatively short time, and now makes its appearance in the English language, needs no criticism; it speaks for itself; it has won the first place among ophthalmic text-books, and no ophthalmic surgeon can be without it.

To revert to the details of the book, it opens with a chapter devoted to the objective examination of the eyes; and our author truthfully says, "In making this examination, too much stress cannot be laid upon the necessity of proceeding systematically, since otherwise important matters can very readily be overlooked."

In other words, a student of ophthalmology should not try to make himself master of the remote pathological changes before he knows what to see in a normal condition. Much skill and delicacy of touch is necessary to evert an eyelid without causing pain. Minute observation is necessary to distinguish between a conjunctivitis due to a foreign body or to morbid process. A cornea may appear to the careless observer clear, yet to the expert filled with minute flecks of inflammatory deposits.

An iris may have its metallic lustre to one, and yet show evidence of congestion

to another, and, "lastly, we determine whether the pupil is circular, of normal width, centrally placed and of pure black hue." *Such* are the details to which the attention of the reader is called. The deeper structures of the eye are similarly noted.

In that part of the work which treats more directly of disease and its ending, we have first the normal and histological formation, followed by descriptions of the morbid changes; and, lastly, of their treatment.

Throughout these chapters no details have been omitted. To one who has not had time to follow laboratory researches this work gives him a *résumé* of all that has been done in recent years. To the student yet in the midst of his investigations it gives him much information.

The chapters devoted to the disturbances of motility of the eye are exceptionally full, but we find that both the author and translator have omitted to mention the equilibrium tests by Maddox, Stevens, and Prentice. Our author still uses the test as suggested by Von Graefe.

Professor Fuchs expresses the key-note of success in operations upon the eye when he says:

"We have less to do with *antiseptis* than with *a-sepsis*." He advises the cleansing of the palpebral sac with a corrosive sublimate one to four thousand. Instruments should be thoroughly cleansed, so that in all eye-operations it is doubly important that we seek to attain healing by first intention; but if suppuration ensues the eye is lost, which, for the operator on the eye, is the same thing as the death of the patient to the surgeon.

In cataract operations the knife is advised to be withdrawn slowly and with one sweep, and the greatest care exercised that the iris does not become incarcerated. Inclusion of the iris in the wound is accompanied by evil consequences of many kinds, and must be avoided at all cost."

Our author does not speak of the ideal operation as is at present the fashion in this country, other than to mention it, but leans more to the modified Graefe operation, which has stood the test of time so successfully. In regard to following the extraction of the cataract with irrigation of the anterior chamber, the author writes, "I have employed irrigation pretty often, but without seeing any essential advantages accruing from it." Verily we say the same. The after-treatment of cataract is wisely planned and judiciously carried out.

The many operations upon the muscles and eyelids are described, and those upon the lids fully illustrated. The book is a master-piece of the printer's art and the wood-cuts are excellent.

We cannot close this review without speaking of the labor of the translator. He has done his work well, and his added notes make the book particularly valuable to the English reader.

THE GEOGRAPHICAL DISTRIBUTION OF DISEASE IN GREAT BRITAIN. By Alfred Haviland, M.R.C.S. 8vo, pp. 406; with seven colored Maps. London: Swan Sonnenschein & Co. Second Edition, 1892.

Dr. Haviland's investigations in this field show the relation of soil, winds, and the topography of England to the distribution of cancer, phthisis, and heart-disease. Especial attention has been given to Cumberland and Westmoreland Counties, which include the English lake district, and with most minute studies of their geographical features, local meteorology, and climatology, racial characteristics of the population, and the prevalence of certain diseases. Faithful studies of this nature give clues to the causation of obscure disease, and will enable one to adopt rational methods in preventive medicine. The careful registry of vital statistics in Great Britain permit safe conclusions to be drawn. Dr. Haviland shows that in the northern counties the death-rates from phthisis have a tendency to increase from the central and more protected districts to the peripheral or coastal and more exposed; that



the irritating qualities of the strong atmospheric currents, more or less ozoniferous, produce pulmonary catarrh, and thus in the untainted but susceptible, prepare the lung for the bacillus, and, in the tainted, expedite the process of destruction.

On the other hand, heart-disease and rheumatism are least prevalent in districts most exposed to the prevailing winds, and most prevalent in sheltered districts. The author notices the relation of the wheat-yield to local climates, and the curious fact that those which conduce to a light wheat-yield are associated with a heavy death-roll from heart-disease, whilst a heavy wheat-yield is invariably found where free ventilation by the prevailing winds secures the lightest death-rate from cardiac and other diseases of the circulatory organs. While no mention is made of the United States in these investigations, reference to a map showing the geographical distribution of heart-disease in this country beautifully corroborates the English observations.

The consideration of cancer embraces an important part of this work, and it is discussed in an exceedingly interesting manner. It appears that in England cancer is least prevalent on rocky ground and high-lying places, especially the limestone districts, whereas this disease is most common in marshy regions and on the wet soil of river basins subject to inundations. The maps plainly show a great preponderance of cancer in the basin of the Thames, while North England and Wales are most exempt. The flooded and clay districts afford, in ten thousand women above the age of thirty-five, an annual mortality of 19.89; while the limestone districts yield a mortality of only 9.27.

Practically the consumptive is advised "to seek well-sheltered, fertile, upland localities, where the trees are symmetrical and erect; those suffering from the forms of heart-disease associated with rheumatism, well-ventilated, well-aspected districts, where the wheat plant thrives and yields plentifully; and those having reason to dread cancer, the high dry districts, characterized by either limestone or chalk formations."

**PRACTICAL PATHOLOGY. A MANUAL FOR STUDENTS AND PRACTITIONERS.** By G. Sims Woodhead, M.D., F.R.C.P. (Edin.), Fellow of the Royal Society, Edinburgh, etc. With One Hundred and Ninety-five Colored Illustrations. Third Edition. Edinburgh and London: J. Young Pentland. Philadelphia: J. B. Lippincott Company, 1892.

The author of this excellent book, recognizing the rapid strides made during the past decade, in the study of pathology, has endeavored to give to the student and practitioner a companion and adviser whose knowledge and methods shall be abreast with the times. He has most admirably achieved his object in the revised and enlarged third edition of his work.

Nothing aids the teacher of pathology so much as a comprehensive and concise text-book to be used as a guide and book of reference by the student.

The many unsettled ideas which lead up to the thousand-and-one questions can be avoided if the student has a suitable reference-book. Unfortunately, of all the many text-books available so few treat of the subjects, so necessary to the student, in a concise and logical manner, that when a book of reference is asked for, it becomes necessary to recommend several. Woodhead's Practical Pathology, therefore, fills a long-felt want in this respect, answering as it does the questions of technique as well as interpreting the gross and microscopical changes in the tissues.

The classification of the various organs, and their consideration in health and disease in the same chapter, together with the full index, renders the task of reference exceedingly simple. Enough is said on the various subjects to make clear to one's mind the true nature of the change without going into the field of theory or speculation.

The plan of reference to the best method for hardening and staining the various tissues by the use of the paragraph numbers is very convenient.

The first chapter very properly starts off with a full and complete set of rules for conducting a post-mortem examination.

The second chapter devotes eighty-five pages to instruments and methods employed in the study of pathological histology. This chapter is very full, and here, if anywhere, adverse criticism could justly be expressed. Too many methods are described, too many staining mixtures are referred to, which only tend to mystify the student and render the subject, already complicated, too difficult for the average worker in the laboratory.

The chapter on inflammation and healing of wounds is very clearly written, and presents the latest ideas regarding this very common though complex process.

The subject so often entirely neglected in similar works, and one of greatest importance to the student, namely, the naked-eye appearance of diseased organs, is fortunately given a prominent place.

The illustrations are very beautiful, representing not only true types most frequently met with in practical work, and not merely free-hand sketches to illustrate the author's favorite theories, but are colored so as to correspond with the staining fluids used in preparing the various tissues.

One is compelled to regret that, in a work otherwise so satisfactory, the references to the pancreas, bladder, and vermiform appendix are so brief and general.

The chapter on tumors is very satisfactory, and does not go too deeply to bewilder one.

Taken as a practical guide for laboratory and home reference, the volume stands at the head of its class, and the few slight faults are easily forgotten when its merits are considered.

REGIONAL ANATOMY IN ITS RELATION TO MEDICINE AND SURGERY. By George McClellan, M.D. Volume ii. Philadelphia: J. B. Lippincott Co., 1892.

This volume completes the exceedingly valuable work, the first volume of which was reviewed some months ago. In it are to be found the same excellence in selection of subjects to be illustrated by the author's camera and brush, and the same kind of practical deductions for surgeon and physician. The satisfaction experienced in examining the earlier volume will be again felt by the reader who consults this one.

The regions represented are the groin, abdomen, pelvis, perineum, back, loin, and lower extremity. The many and the unusual dissections which have been made for the plates render them very valuable for surgical reference. Some of the illustrations are taken from formal operations in order to show the relations of the structures divided. Thus, Plate 95 exhibits the relations of the parts after disarticulation at the hip-joint, and after amputation of the thigh, leg, and knee. Such illustrations are to a certain extent interesting and are often introduced into works of this character; but they seem to the reviewer of little real value. Of much greater worth are the plates showing the relative positions of tissues and organs as disclosed by careful dissections; and especially so if these dissections are of unusual regions or by unfamiliar routes. No one will object, however, to these plates of conventional operations, since their presence does not detract from the other more useful plates which are found in all parts of the book.

A valuable plate illustrating the author's desire to furnish more than a text-book of descriptive anatomy is No. 82, which is "a topographical survey of the posterior surface of the body of a well-developed male adult, with especial reference to the clinical study of the relations of the thoracic and abdominal organs; also showing the relations of the bones to the surface of the left upper extremity, and the localization of the areas of distribution of the sensory nerves on the back of the left



arm and forearm." Such contributions to what may be called "clinical anatomy" add distinctly to the work of Dr. McClellan as a reference book in one's library.

The descriptions of the regions presented naturally correspond in carefulness and comprehensiveness with those accompanying the plates of the former volume. The anatomist or teacher who is drawn to the book by an interest in the abstract study of human structures will not be disappointed in its perusal; nor will the practitioner, who looks for guidance and suggestions in his daily work, lay it down without finding valuable medical and surgical hints. The anatomical descriptions may be thought by some to be scarcely detailed enough for so pretentious a work. This is perhaps true; but it must be remembered that the illustrations were probably the cause of the author undertaking the task of producing an elaborate work on regional anatomy. If such is the case, the painstaking character of the descriptions is surprising, even if they do not go deeply into minute details. The attempt to give a surgical cast to some sections occasionally adds to the bulk of the book without increasing its value. An instance of this defect may be seen in the chapters on the thigh and the knee, where considerable space is given to ankylosis, fractures, and dislocations. These subjects can, in a book on anatomy, scarcely receive more than mention, consequently the pages devoted to them give little information, though they increase the bulk of the volume. While perfectly in place in a course of regional anatomy delivered to medical students, these surgical statements are scarcely deserving place in a formal treatise. These criticisms apply to the first as well as to the second volume.

**MEMORANDA ON POISONS.** By Thomas Hawkes Tanner, M.D., F.L.S. Seventh American from the last London edition. Revised by John J. Reese, M.D., late Professor of Medical Jurisprudence and Toxicology in the University of Pennsylvania. Philadelphia: P. Blakiston, Son & Co., 1892. Price 75 cents.

This little manual has been so favorably received that a new edition has become necessary this year. Without materially increasing the size some new matters of importance have been added. The principal changes have been the substitution of modern chemical nomenclature and the omission of obsolete portions of the old text. The contents are very systematically arranged, and a complete index renders the information contained in its pages easily obtainable. The book is eminently practical, and contains considerable information which it is very important for the well-equipped medical man to have within easy access. It contains upward of one hundred and seventy-seven pages, and is of such a size that it can readily be carried in the ordinary coat-pocket.

**STUDENT'S QUIZ SERIES. ANATOMY. A MANUAL FOR STUDENTS AND PRACTITIONERS.** By Fred. J. Brockway, M.D., and A. O'Malley, M.D.

This book is not intended as a "compend," but aims to present its subject in a concise and concentrated manner to the reader or student; the questions asked are, as a rule, headings paving the way for a large amount of information in the answer. In this manner a page is frequently required to answer one far-reaching question; consequently as a quiz compend it will not be popular among students who wish to avoid hard study. Some of the questions are even a little startling to the older practitioner,—*i.e.*, *Q.* What are some of the homologous comparisons of the upper and lower limbs? *Ans.* "The peripheral parts of both limbs in man and animals show a quinquified division, but certain vestiges of suppressed digits give reason for believing that this division was preceded by one of seven (heptadactyle)," etc. This clears itself in your mind after a moment's thought.

The book is clearly printed on good paper, and the few illustrations it contains serve to illuminate descriptions otherwise understood with difficulty from the text. It also contains a small glossary and an accurate index. The book recommends itself

to those who wish reliable and concise descriptions of anatomical points. It is up to date. As it is a double number its price (\$1.75) is higher than is usual for this class of book.

**MEDICAL AND SURGICAL GYNÆCOLOGY.** By S. Pozzi, M.D. Translated from the French by Brooke H. Wells. 2 vols. New York: William Wood & Co., 1892.

It is absolutely impossible, on short notice, to give even an idea of this work, and it represents so much original matter, so thoroughly well elucidated and based upon such an extensive experience, that all we can say is that our readers who are interested in gynæcology—even though they be general practitioners—should avail themselves of it. The American editor has done his work admirably, and it is due to him that the book is so well adapted to the American medical public. Not the least important part of the book is the bibliography at the end of each chapter. We would like much to go over this book, and to give "Pozzi's views" on different matters that are at present before gynæcologists for discussion; but we notice that this is already being done in the different journal articles, for Pozzi has made for himself the enviable position of being considered an authority. We must say that we had hoped we had seen the last of some of the old played-out illustrations that have gone through all the books on gynæcology we can remember; but some of the illustrations are really excellent, and we would specially call attention to the beautiful plate on page 38, volume ii. It is a very remarkable thing that this work was no sooner published and issued than it was translated into four languages. As regards the American edition, we may say that it is in keeping with all the different works which have recently been issued, which is saying a great deal. We notice that a second edition of the original work has already appeared in France.

**TUBERCULOSIS OF BONES AND JOINTS.** By N. Senn, M.D., Ph.D., Professor of Practice of Surgery in Rush Medical College; Professor of Surgery in the Chicago Polyclinic; Attending Surgeon Presbyterian Hospital; Surgeon-in-Chief St. Joseph's Hospital; President of the American Surgical Association; President of the Association of Military Surgeons of the National Guard of the United States; Permanent Member of the German Congress of Surgeons, etc. Illustrated with 107 Engravings (seven of them colored). In one handsome Royal Octavo Volume. 520 pages. Extra Cloth, \$4.00 net; Sheep, \$5.00 net; Half-Russia, \$5.00. Philadelphia: The F. A. Davis Co., Publishers, 1231 Filbert Street.

The object of the author in writing this book has been to collect from medical literature the modern ideas on tubercular disease of bones and joints and present them to the reader in a condensed form, mingled, in appropriate places, with the results of his own experience. The successful treatment of these affections greatly depends upon an early correct diagnosis, and the adoption of the proper local and general treatment in compliance with the true nature of the disease. No one is better able than Dr. Nicholas Senn to cull out what is valuable from the writings on this subject, and no one can better appreciate the practical value of the recent contributions to the knowledge of these diseases. Dr. Senn's extensive knowledge of pathology and his thoroughness in dealing with every subject are nowhere better illustrated than in this present work. The size of the volume is warranted by the numerous additions which have recently been made to the literature of this subject. The type is large, clear, and easy to read, and the workmanship on the book has been well executed, although its appearance is not as elegant as more expensive productions of the same publishers. The engravings, while they answer the purpose of illustration, have not the neatness and finish that one would like to see in so valuable a book.



The history of this subject gives an account of the crudest ideas in reference to the etiology, etc., of these affections less than a century ago. The last ten years are replete with new revelations and discoveries based on accurate clinical observation, microscopical examination, bacteriological investigation, and experimental research. No department in medicine or surgery has witnessed a more radical change than the etiology of tuberculosis of the bones and joints. The fact that the inflammatory product in bone and joint tuberculosis presents the same histological structure and is subject to the same pathological changes as tubercle in the lungs warrants the writer in the assertion that they are produced by the same cause and undergo analogous degenerative processes. No one can read the chapter on the bacillus tuberculosis without arriving at a very accurate idea of this micro-organism. No better illustrations of the bacillus exist elsewhere, and the most useful methods for detecting its presence are detailed. The histology of tubercle is very carefully considered, and the conclusion arrived at that the giant cells in tubercular tissue are nothing more or less than hyperplastic epithelioid cells, and consequently are derived from the same histological source. This portion of the text is particularly well illustrated, although the detail of the cuts is not as exact as it should be.

The writer believes that the mesoblastic tissues, especially the connective tissue and endothelial cells, being the first to become infected, furnish the greatest amount of new material in tubercular lesions, but that all tissues when infected take part in the process. The author states that the tubercular bacillus is not a true pyogenic microbe, and that when a tubercular abscess occurs it is due to secondary infection with pus microbes. He further states: "I have learned to regard pronounced anæmia as an unfavorable symptom in the different forms of surgical tuberculosis as it is often an expression that general infection has occurred, or that important internal organs are the seat of serious organic changes."

The treatment advocated for tubercular abscess is nutritious food, some ale or porter, or a good wine, plenty of out-door air, and a change of residence if possible. Several practical suggestions are offered in the consideration of the usual tonics for this condition. Locally, tapping of the abscess followed by antiseptic irrigation and subcutaneous iodoformization is recommended. He believes that caries of bone should no longer be considered as a disease, but as one of the effects of some pathological process. The etiology of bone tuberculosis is still involved in doubt. Traumatism only acts as an exciting cause in the production of bone tuberculosis in persons already infected with the disease. Dr. Senn enters an earnest protest against the indiscriminate use of the probe in the exploration of fistulous tracks for diagnostic purposes, as he believes that septic infection can be produced not only by an unclean instrument, but also by means of the most carefully disinfected probe. While healing of a tubercular process in bone is possible under favorable conditions, there is always danger of recurrence of the trouble.

The chapter on tuberculosis of joints will be of great assistance in arriving at a correct understanding of disease in those regions, but we are loath to believe that every one who suffers from one of the so-called rice bodies loose in a joint are doomed to tuberculosis. This seems to be pushing the tubercular process a little too far. Certain it is that the so-called "tennis-knee" is often seen in healthy subjects, and athletes of the strongest constitution. If these rice bodies are always tubercular then we would be forced to believe that tubercle bacilli inhabit even healthy joints, as the essential cause of the tuberculosis of the joints consists in the presence of tubercle bacilli in sufficient number in the soft structures of the joint to enable them to exercise their specific pathogenic properties upon tissues predisposed to infection by hereditary or acquired causes.

After giving Koch's lymph a fair trial, and having carefully observed its effects, the author is firmly convinced both of the danger which attends its use and its utter

uselessness in curing any form of tuberculosis. In a word, "away with Koch's lymph."

More than half of the book is devoted to the treatment of tubercular affections. Locally, the writer has had very excellent results with iodoform injections, and urges the more general adoption of this excellent drug by American surgeons. The portions on the operative treatment are very thorough, and have received a very large portion of the author's attention. The text is illustrated pathologically, anatomically, and practically, and the results of treatment by various new apparatus are tersely stated.

Embodying, as this book does, the results of so much labor and scientific methods of investigation, it must at once become an indispensable part of a surgeon's library. General practitioners also will do well to consult its pages, as the troubles treated of are unfortunately far too common. The text would have read much more smoothly had the author condensed the subject-matter and written only what he really believed in himself, with a brief reference as a foot-note to the authors and investigators quoted, rather than to make use of such liberal abstracts as he has done. The opinions and methods of such a practical and experienced surgeon as Dr. Senn are of much more value to the average practitioner than the ideas of a hundred German or other investigators.

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### NOTICE.

#### WORLD'S COLUMBIAN EXPOSITION. DEPARTMENT OF LIBERAL ARTS.

A BUREAU of hygiene and sanitation has been organized for the World's Columbian Exposition to prepare a collective exhibit illustrative of the present condition of sanitary science. It is hoped to make this exhibit illustrate the present status of sanitary work and sanitary aids in such a way as to educate the general mind to a proper estimation of this valuable work. Certainly the last two decades have seen very great improvements in the science of hygiene and its practice as an art. The city of Munich is an apt illustration of the benefits derivable. When that city was without a proper system of sewerage and a pure water-supply the death-rate from typhoid fever was about twenty-four in every ten thousand; after the improved system was inaugurated the death-rate was reduced to about thirteen in every ten thousand. Other countries might be similarly quoted.

Inasmuch as the United States has been the pioneer, and is still the leader in many departments of the world's progress, it is to be hoped that in such an important matter as the care of the public life and health it will take equal prominence. In the several departments of the bureau exhibits will be made of properly-constructed buildings, farm-houses, etc., laboratories for bacteriological research, and hygienic analytical investigations, and an effort will be made to tabulate the results of the work of the several boards of health and sanitary societies. The great problems of proper water-supply, drainage, sewerage, ventilation, and heating will all be properly cared for, and "it is hoped that municipalities, companies, and associations, as well as individual exhibitors engaged in these departments of sanitation,



will aid in the efficacy and interests of the division by displaying models and illustrations of their work."

Applications for space should be made as early as possible to the director-general, George R. Davis, Esq. On addressing the Department of Liberal Art at Chicago, a blank form of application will be sent to exhibitors without delay.

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#### THE QUACK QUESTION AS HANDLED BY THE CITY COUNCIL OF MANSFIELD, OHIO.

AT the meeting of the council of the City of Mansfield, Ohio, on November 29, 1892, an ordinance was passed by a two-thirds majority which prevents any quack or itinerant venders of medicine, "tooth-pullers," or other impostors practising their nefarious schemes in that city without first getting a permit from the health officer, who, by the ordinance, is required to be a regular physician. The ordinance also requires these quacks to display a diploma from some respectable college before the health officer can give them the necessary certificate entitling them to a license at all. On the presentation of said certificate to the mayor they can receive a license, for which they must pay not less than twenty-five dollars nor more than fifty dollars a day, and are also subject to a fine of not less than twenty-five dollars nor more than fifty dollars for each and every offence for the violation of this ordinance.

The law goes into effect immediately after its publication and covers physicians, midwives, pharmacists, and dentists. If every city council throughout the State of Ohio would follow the example set by the Council of Mansfield they would take a grand step in the direction of getting rid of quacks and impostors which infest all our large cities. This plan has been tried in Kentucky, and so far has proved to be of great advantage in getting rid of these leeches, and should be followed by all the States that have no special laws or cannot get special legislation to remedy this great evil.

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#### NOTE TO CONTRIBUTORS.

Manuscript accepted will be liberally compensated or reprints furnished in lieu of such compensation.

It is distinctly understood that all articles accepted are for our exclusive use and are not to appear in any other publication.

All matters of business and subscriptions to be sent to the Publishers. Manuscripts and books for review should be addressed to the Editorial Office, 319 South Eighteenth Street, Philadelphia. EDITOR.

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